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TECHNICAL MEMORANDUM
DEWATERING/BARRIER WALL ALIGNMENT
INVESTIGATION REPORT

AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

PREPARED FOR:
ACS RD/RA EXECUTIVE COMMITTEE

• • •
PREPARED BY:
MONTGOMERY WATSON
ADDISON, ILLINOIS

MARCH 1996



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March 29, 1996

Reference No. 3481

Ms. Sheri Bianchin
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY (USEPA)
Region V (HSRL-6J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Dear Ms. Bianchin:

Re: Technical Memorandum - Dewatering/
Barrier Wall Alignment Investigation Report - ACS

Please find enclosed a copy of the Technical Memorandum for the Dewatering/Barrier Wall Alignment Investigation. Please note the schedule in Table 4 which shows that we hope to complete the construction of the barrier wall this year. In order to meet this schedule, we will need comments on this document, as well as the 50% and 100% Design submittals.

We look forward to discussing the results of this investigation with you. Please feel free to contact us with any questions you may have.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES



Ronald Frehner

RP/br

Enc.

c.c. Holly Grejda; IDEM
Steve Mrkvicka/Rob Lantz; Black & Veatch
Steve Magnion; USEPA
ACS Technical Committee

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INTRODUCTION

1.1 OBJECTIVES

This Technical Memorandum summarizes the results of investigation activities conducted to delineate the alignment and support the design of the dewatering/barrier wall at the ACS NPL site in Griffith, Indiana. The purpose of the dewatering/barrier wall is to prevent migration of contaminants from the Still Bottoms/Treatment Lagoon and Off-Site Containment Area (OSCA) to the site boundary. The dewatering/barrier wall investigation was performed in accordance with the January 12, 1996 Dewatering/Barrier Wall Alignment Pre-Design Work Plan approved by U.S. EPA and IDEM. It was originally proposed to install two separate barrier walls, one for the Still Bottoms/Treatment Lagoon Area, the other for the Off-Site Containment Area. Data were collected and evaluated for the investigation to accomplish the following objectives:

- Determine the lateral extent of waste materials at the locations where the barrier wall alignment is proposed. (According to the ROD, wastes are classified as soils with total VOC concentrations of 10,000 ppm (1 percent) or greater, and/or PCB concentrations of 10 ppm or greater.)
- Collect field and laboratory geotechnical information to support the design and construction of the barrier wall.
- Define the elevation of the top of the clay confining layer along the barrier wall alignment.
- Collect soil samples for potential mix design testing of a soil-bentonite barrier wall.
- Collect groundwater samples for potential compatibility testing of the proposed barrier wall.
- Provide sufficient information regarding site conditions to barrier wall subcontractors intending to propose and bid on barrier wall technology and design.

Samples of soil and groundwater were collected for soil-bentonite wall mix and compatibility testing. The soil-bentonite design and compatibility testing will be performed by the barrier wall subcontractor during barrier wall final design if a soil-bentonite mix design as needed to complete the technology selection process.

1.2 SCOPE OF WORK

Field investigations for the barrier wall alignment generally consisted of drilling soil borings extending to the underlying clay confining layer along the proposed alignment of the barrier walls, and assessing the presence of waste materials through visual inspections and field and laboratory analyses of selected soil samples. If material was found that met or exceeded the criteria for "waste", additional borings were conducted outward from the waste area to determine the extent of waste materials.

Field analysis of soil samples consisted of using field test kits for analysis of PCBs, a field gas chromatograph (GC) for analysis of total VOCs (defined as the sum total of the concentrations of detected target VOCs), and hydrophobic dye to test for the presence of free-phase materials. Duplicate soil samples were submitted to the laboratory for analysis when field analysis indicated VOC concentrations greater than 8,000 ppm or PCB concentrations approaching or exceeding 10 ppm.

Representative soil samples for geotechnical analyses were collected from borings located along the barrier wall final alignment and submitted to the laboratory for grain size analysis and hydraulic conductivity/permeability testing.

Soil borings were drilled during the barrier wall investigation to gather geotechnical information to design Pilot Test Cells in the Still Bottoms/Treatment Lagoon Area and the Off-Site Containment Area. Information gathered during the test cell soil borings included standard penetration testing, field soil classification and the depth to the clay confining layer. Field and laboratory analyses were not performed on soil samples collected from these areas.

PROCEDURES

2.1 DRILLING

A total of 23 soil borings were advanced in the Off-Site Containment Area (SB201 through SB223) and 48 soil borings were drilled in Still Bottoms/Treatment Lagoon Area (SB101 through SB144 and SB149 through SB152). The locations of the soil borings are shown in Figure 1. Soil boring location coordinates, ground surface elevations, and depth to the clay confining layer are presented in Table 1. Work was conducted following the SOW and SOPs approved by the U.S. EPA on January 12, 1996.

The intervals between soil boring locations ranged from 25 feet in the area south of the fire pond area to approximately 200 feet along the eastern perimeter (Figure 1). In general, locations were more closely spaced in areas where detailed information was required regarding the extent of waste materials. Ground surface elevations, and northing and easting coordinates were surveyed to the nearest 0.1 foot for each boring by Area Survey of Orland Park, Illinois. The survey report for the barrier wall investigation is presented in Appendix A.

Soil borings were advanced approximately two feet into the top of the clay confining layer and logged by a geologist at both areas of the site. The depth to clay and elevation of the top of clay for all soil boring locations are also included in Table 1. The elevation of the top of the clay confining layer ranged from approximately 617 feet to 622 mean sea level (msl) feet throughout the site area. Soil boring logs for borings located along the proposed final alignment are presented in Appendix B1. Pilot test cell soil borings are presented in Appendix B2. Remaining soil boring logs (borings not along the final alignment) are presented in Appendix B3.

Two drilling rigs were utilized concurrently to advance soil borings in the Still Bottoms/Treatment Lagoon Area and Off-Site Containment Area during the field investigation. An all-terrain vehicle (ATV) mounted drill rig was used to access the soil borings in the Off-Site Containment Area, whereas a truck-mounted rig was used in the Still Bottoms/Treatment Lagoon Area. All borings were drilled with 3.25-inch inside diameter (I.D.) hollow stem augers. Following completion of the borings, the boreholes were backfilled to the ground surface using a bentonite-cement grout. Soil boring locations were subsequently surveyed by Area Survey (Appendix A).

Soil boring and sample collection were conducted in accordance with the U.S. EPA and IDEM approved, January 12, 1996 Dewatering/Barrier Wall Alignment Pre-Design Work Plan and the Specific Operating Procedure (SOP) for drilling and soil sampling, with the following exceptions:

- Soil borings SB109 through SB113, SB134 through SB136, and SB150 through SB152 in the Still Bottoms/Treatment Lagoon Area and borings SB206, SB212, SB215, SB217, and SB221 in the Off-Site Containment Area were continuously sampled (i.e., 1 to 3 ft, 3 to 5 ft, etc.) to the bottom of each boring in order to collect additional soil volume for geotechnical laboratory analyses.
- Pilot test cell borings SB145 through SB148 in the Still Bottoms/Treatment Lagoon Area, and borings SB224 through SB227 in the Off-Site Containment Area, were allowed to cave-in naturally for borehole backfill as opposed to the bentonite cement grout used for the remainder of the barrier wall alignment borings. This was conducted with concurrence from the EPA field representative. The cave-in technique was used due to the large void spaces present within the formation which made grouting with bentonite impractical.

2.2 SAMPLE COLLECTION

Soil samples were collected from borings for field and laboratory analyses. Samples were collected in the field according to the following strategy outlined in the Dewatering/Barrier Wall Alignment Pre-Design Work Plan:

- One to two soil samples per boring were collected based on visual observations, (i.e., black or brown staining, presence of free phase material) for PCB field screening using an Ohmicron Environmental Diagnostics Rapid Assay Soil Test.
- One to two soil samples per boring were selected based on visual observations and PID readings for VOC analyses with the field GC.
- One soil sample per boring, located at the interface of the sand and clay confining layer, was collected and analyzed for the presence of free phase material utilizing the hydrophobic dye testing technique.
- Four 30-inch long, 3-inch diameter Shelby tube samples were collected from the areas (two from the Off-Site Containment Area and two from the Still Bottoms/Treatment Lagoon Area). The Shelby tube samples were collected from borings located along the proposed final alignment and one sample from each Shelby tube was analyzed for permeability using the falling head method.
- Twenty-two soil samples (from 11 borings) were collected along the proposed final alignment and analyzed for grain size distribution (ASTM D422).

SAMPLE ANALYSIS

3.1 PCB ANALYSIS

Soil samples were analyzed for PCB field screening using the Ohmicron Environmental Diagnostics Rapid Assay Soil Test according to the User's Guide presented in the approved Dewatering/Barrier Wall Alignment Pre-Design Work Plan. Montgomery Watson field personnel were trained in the use and application of the method by an Ohmicron representative prior to starting the sampling analysis. The following exceptions occurred to the Work Plan:

- A dilution of five was used in Step 46 of the flow diagram (provided in the Barrier Wall Investigation Work Plan) rather than a dilution of twenty. The one to five dilution was used to achieve the 10 ppm cutoff (waste criteria) for PCBs in soil.
- No soil samples were selected for field PCB analysis from soil boring SB201 due to auger refusal at a depth of 8 ft (See boring log for SB201 in Appendix B1). Soil boring SB210 was used as a replacement for SB201.

Field screening results from the soil samples and proficiency samples analyzed are presented in Appendix C.

3.2 FIELD GC ANALYSIS

Soil samples were analyzed for target VOCs using the field GC in accordance with the approved SOP with the following exceptions:

- Due to the high concentration of target VOCs in the soils, samples were run at a five-to-one dilution. Detection limits are subsequently five-times higher than the proposed limits.
- No soil samples were analyzed for VOCs from soil boring SB201 due to auger refusal at a depth of 8 ft (See boring log for SB201 in Appendix B2).). Soil boring SB210 was used as a replacement for SB201.

Tabulated field GC screening results from each sample analyzed are presented in Appendix D.

3.3 LABORATORY ANALYSIS

Soil samples which indicated VOC concentration greater than 8,000 ppm from the field GC analytical results, or PCB concentrations close to 10 ppm from the Ohmicron Rapid Assay Soil Field Test kit were sent to IEA Analytical Laboratories in Cary, North Carolina for confirmatory analyses in accordance with the Contract Laboratory Program (CLP) Statement of Work.

A summary of the analytical laboratory results and comparison to the field GC and PCB test kits are presented in Table 2. The complete IEA Laboratory report is presented in Appendix E.

3.4 GEOTECHNICAL LABORATORY ANALYSIS

Geotechnical laboratory analysis performed at CGC, Inc. of Madison, Wisconsin included grain size distribution (ASTM D422) for granular, Atterberg limits (liquid limit and plasticity index) (ASTM D4318), grain size distribution (ASTM D422), and falling head permeabilities using the U.S. Army Corps of Engineers Method EM 1110-2-1906 (VII) for samples from the clay confining layer.

Geotechnical laboratory testing for the soil-bentonite mix design and compatibility testing was not performed at this time. As previously stated, these tests will be performed by our construction subcontractor, as necessary, to select a soil-bentonite mix for sections of the barrier wall to be constructed as a bentonite slurry wall.

Geotechnical analyses of selected soil samples were conducted in accordance with the Dewatering/Barrier Wall Alignment Pre-Design Work Plan, with the following exceptions:

- Soil samples collected for grain size analysis along the proposed final alignment were analyzed at intervals greater than 200 feet. Because the original 200-foot spacing of soil samples for grain size analysis was based on a shorter length of alignment, increasing the proposed alignment length served to extend the distance between samples. Due to the consistent geology over the entire site, little variation in grain size was noted between borings located more than 200 feet apart (see Section 7). Soil samples were collected from all borings conducted during the investigation and are currently being stored. These soil samples will be available for additional grain size analyses in the future, if necessary.
- Due to the low conductivity of the clay, the results of the flexible-wall hydraulic conductivity/permeability tests (ASTM D5084) are not available at this time. The results will be submitted to the U.S. EPA under separate cover on April 19, 1996.
- In addition to the flexible-wall hydraulic conductivity/permeability testing, rigid-wall falling head permeability testing (U.S. Army Corps of Engineers Method EM

1110-2-1906 (VII)) was performed on the four Shelby tube samples. The U.S. Army Corps rigid wall falling head permeability test method was performed in order to model the worse case existing soil conditions of the clay confining layer at ACS.

BARRIER WALL ALIGNMENT

4.1 PROPOSED FINAL ALIGNMENT

The proposed final alignment of the Dewatering/Barrier Wall is presented in Figure 2. The objective of the field investigation was to evaluate the suitability of the proposed barrier wall alignments. The approved Work Plan included a method to move the barrier wall alignment outward at locations where waste conditions were identified in the subsurface. Therefore, the final wall alignment was based on the preliminary estimate of location, modified by the field and laboratory analysis of soil samples for VOCs and PCBs.

4.2 STILL BOTTOMS/TREATMENT LAGOON

4.2.1 North Alignment

PCBs were detected greater than 10 ppm in soil borings SB112 and SB125 by field screening tests (Appendix C). This required the proposed alignment to be moved outward, further to the north. Soil borings SB127 and SB142 were advanced to the north of SB112 and SB125, respectively. No exceedences of waste criteria for PCBs (10 ppm) or total VOCs (10,000 ppm) were observed in soil samples analyzed in the field from soil boring SB142.

Field screening for PCBs in a soil sample collected from SB127 at a depth of 6 to 8 ft did not indicate an exceedence of the waste criteria (8.5 ppm). However, a duplicate sample sent to IEA for confirmatory analyses indicated a total PCB concentration of 44 ppm. The next deeper zone, from the 8 to 10 foot depth was also field-tested for PCBs but none were detected. On the basis of all the sampling results along the north alignment, the PCB exceedance at SB127 is considered a localized condition. Furthermore, there is an above ground liquid nitrogen storage tank and several other tanks located just to the north of the SB127 so it is not feasible to move the alignment north around a localized area. The soil cuttings generated during any excavation for barrier wall construction in the vicinity of SB127 will be managed stored on site for future remediation.

4.2.2 West Alignment

Exceedences of PCBs (>10 ppm) were found in soil samples collected from soil borings SB122 and SB137, requiring the west portion of the alignment to be moved further to the west. PCBs were not detected greater than the waste criteria in soil samples collected from soil boring SB141, located approximately 26 ft west of soil boring SB137 (Figure 1).

Therefore, the final alignment was oriented through this boring location. Additional soil samples collected along the revised alignment soil borings (SB140, SB136, SB139 and SB131) did not indicate PCB concentrations greater than 10 ppm.

4.2.3 Railroad Spur Area

Soil borings advanced at 25-foot intervals along the railroad spur indicated potential exceedences of PCBs with field screening (>10ppm) in soil samples collected from soil borings SB101, SB103, SB105, SB107, and SB108. These potential exceedences required that the southern section of the proposed barrier wall be moved further south. Soil boring SB120 was advanced approximately 100 feet south of soil boring SB105, near a building located immediately south of the railroad spur (Figure 1). Because PCBs were detected in SB120 greater than 50 ppm with field screening, the final alignment was moved further south.

A new potential alignment, 50 feet farther to the south from SB120, was selected for sampling and proposed to U.S. EPA. U.S. EPA approved the revised location, and a series of borings (SB129 through SB135) were made along the fence line marking the south boundary of the ACS facility (Figures 1 and 2). Field screening results suggested PCBs were present in soil borings SB129, SB134 and SB135 greater than 10 ppm, and positive results from the hydrophobic dye test were noted in soil samples collected at the sand/clay confining layer interface in soil boring SB134 (19 to 21 ft). The positive dye test results indicated the presence of free phase material at these locations.

Soil boring SB138 was advanced south of soil boring SB134, near the fence boundary of the ACS facility. PCBs were detected with field screening at 26.8 ppm in the 18.5 to 20.5 ft sample interval, indicating an exceedance of the "waste" criteria. The hydrophobic dye test from the same interval also indicated the presence of free phase material in this sample.

4.2.4 Additional Soil Borings - Proposed Final Alignment

The results of borings SB129 through SB135, and SB138 suggested that oil and PCB containing soil extended at least to the south ACS property line. Therefore, Montgomery Watson proposed to the U.S. EPA that borings be conducted for the consideration of connecting the two barrier walls into a single wall encompassing both the Still Bottoms/Treatment Lagoon Area and the Off-Site Containment Areas. U.S. EPA approved the proposal, and new borings were made farther to the east along Colfax.

Soil boring SB149 was advanced approximately 125 feet east of soil boring SB142, along the north side of the proposed final alignment. Soil borings SB150, SB151, and SB152 were advanced at 200 feet (approximate) intervals along the east alignment within the ACS facility boundaries

4.3 OFF-SITE CONTAINMENT AREA

The proposed barrier wall alignment in the Off-Site Containment Area is relatively unchanged from the alignment presented in the Dewatering/Barrier Wall Alignment Pre-Design Work Plan. Some minor alignment modifications were made based on the soil boring program and results of field and laboratory samples. Because the refuse and void spaces would limit construction of a barrier wall in this area, additional construction activities may be necessary prior to implementation. Twenty-three boring locations were originally planned and staked around the Still Bottom Pond in the Off-Site Area. The borings were spaced 50 feet apart along the southwestern side, adjacent to the Griffith Landfill, and 200 feet apart around the rest of the area. The closer spacing was planned because previous investigations indicated the probable presence of landfill waste along the southwest side of the Off-Site Area.

Refuse and fill material was encountered in soil borings SB201 through SB210, from near the ground surface, to depths of approximately 17 feet below ground surface. This was consistent with information from previous investigations which indicated that refuse has been buried over much of the southern part of the Off-Site Area.

The PCB waste criterion was not exceeded at any of the boring locations. The waste criterion was exceeded at one sample location, SB205, located along the southwest border of the Off-Site Area. The field GC indicated a concentration of 111,639 ppm total VOCs in the 3.5 to 5.5 foot sample interval. In accordance with the approved Scope of Work, a second boring, SB205A, was made outward, approximately 40 feet west of SB205.

The SB205 location was outside the Off-Site Area fence, in the center of the Griffith Landfill perimeter road. The sampling results did not indicate any exceedences of the waste criteria, however, the boring indicated that virtually the entire soil profile consists of buried municipal landfill refuse. Buried refuse was encountered from a depth of approximately 2 feet, to a depth of 17 feet, just three feet above the confining clay layer. Clearly, moving the barrier wall alignment outward into the Griffith Town Landfill is not a viable solution. Nor would moving the alignment to the east, further into the Off-Site Containment Area be viable, since previous investigations indicate buried waste there too.

The most viable location for the final barrier wall alignment will be through the locations of SB201 to SB210. The boring logs show that there are variable thicknesses of refuse along this alignment. But the waste is generally found above the static water table. Refuse and the associated void spaces would limit the constructability of a barrier wall in this area. A possible solution will be to excavate a trench to the base of the refuse along this portion of the alignment. After removal of the refuse, soils would be brought in to backfill the trench. The proposed final barrier wall would then be constructed through the imported soil. There may be other solutions to the refuse issue, the actual method will be determined in the 100% design.

CROSS SECTIONS OF PROPOSED FINAL ALIGNMENT

A location map of cross sections through the proposed final alignment is presented in Figure 3. Figure 4 shows the cross sections through the north alignment (soil borings SB115 through SB151), and the east alignment (soil borings SB151 through SB213). Figure 5 represents the cross section of the west alignment (soil borings SB115 to SB208). Soil boring logs used for cross sections along the proposed final alignment are presented in Appendix B1. (All other boring logs for the barrier wall alignment investigation are presented in Appendix B3.)

As shown by the cross sections, the geology of the alignment is generally uniform, consisting of fine to coarse sand with some silt and clay overlying a clay confining layer. Soil borings SB151 and SB152, located along Colfax Avenue, contained more sand and gravel than typically observed throughout the site. The depth to clay varied primarily on the basis of ground surface elevation. The clay surface was typically observed to be at an elevation of 617 feet to 622 feet msl. The elevation of the top of clay is consistent with the findings of the Remedial Investigation (RI). The average groundwater elevation of 635 feet above msl along the north (A-A') and east (B-B') cross-section lines, and 634 feet above msl on the west (C-C') cross-section line, is based on groundwater elevation data compiled during the RI from August 17, 1989 to September 13, 1990. The RI data were used to estimate an average water level occurring over a period of time in the late summer and early fall at the site .

ANALYTICAL RESULTS ALONG THE PROPOSED FINAL ALIGNMENT

6.1 PCBs

Field and laboratory PCB results for soil samples collected from borings located along the final alignment are summarized on Table 2. Field screening results and proficiency samples are included in Appendix C. Laboratory analytical reports are presented in Appendix E.

Along the proposed barrier wall final alignment in the Still Bottoms/Treatment Lagoon Area (i.e., 100-series borings), 33 soil samples were collected and analyzed for PCBs using the Ohmicron field test kit. PCBs were detected greater than 10 ppm in 10 of the soil samples analyzed with the test kits collected from the following soil borings: SB113, SB143, SB149, SB150, SB151 and SB152. All of the soil samples which exceeded the 10 ppm waste criteria, as well as two samples near the 10 ppm cutoff level (SB124, 8.5 to 10.5 feet, and SB127, 6 to 8 feet) were submitted to IEA Laboratory for confirmatory PCB analysis.

Of the twelve confirmatory soil samples submitted to the laboratory for PCB analysis, only one soil sample exhibited PCB concentrations greater than 10 ppm (Table 2). PCBs were detected in the 6 to 8 foot soil sample collected from soil boring SB127 at 44 ppm, whereas field results for the same sample indicated PCB concentrations at 8.5 ppm.

A total of 34 soil samples from the Off-Site Containment Area portion of the proposed final alignment (200-series borings) were analyzed with the field test kit. Only one sample, SB214 at 13.5 to 15.5 feet, indicated PCBs above the waste criteria (10.6 ppm). This sample was subsequently sent to IEA for confirmatory analysis. The results indicated the presence of PCBs at a concentration of 2.7 ppm, below waste criteria (Table 2).

6.2 VOCs

Field and laboratory VOC results for soil samples collected from borings located along the final alignment are summarized on Table 2. Field GC results are included in Appendix D. Laboratory analytical reports from IEA are presented in Appendix E.

A total of 23 soil samples from Still Bottoms/Treatment Lagoon Area portion of the proposed final alignment were analyzed with the field GC (Table 2). The field results

indicated only one soil sample, SB143 6 to 8 feet, had a total VOC concentrations (11,583 ppm) greater than 10,000 ppm waste criteria. A sample from the same split spoon was subsequently submitted to IEA for confirmatory analysis. Results from the lab analysis indicated a total VOC concentration of 0.76 ppm. One other sample from soil boring SB142 (6 to 8 feet) was also submitted for laboratory analysis, although the field-determined VOC concentration was less than criteria set forth in the Dewatering/Barrier Wall Alignment Pre-Design Work Plan (5,168 ppm). Results from this sample indicated a total VOC concentration of 335 ppm.

A total of 35 soil samples from Off-Site Containment Area portion of the proposed final alignment were analyzed with the field GC (Table 2). A soil sample from soil boring SB205 exceeded the 10,000 ppm waste criteria for total VOCs. Confirmation samples were not submitted immediately from this soil boring because of anticipation of moving the barrier wall alignment toward a second boring drilled approximately 40 feet west from this location at SB205A. Upon discovery of landfill refuse at SB205A, the alignment of the barrier wall shifted back to SB205 and the holding time for VOC analysis had elapsed. As discussed in Section 4.3, the area around SB205 will be addressed in the 100% design.

Field GC analyses did not show VOCs greater than 8,000 ppm in any other soil samples from the Off-Site Containment Area; therefore, no soil samples were submitted to the laboratory for confirmation analysis.

GEOTECHNICAL RESULTS

The geotechnical laboratory results performed on selected soil samples are summarized on Table 3. The laboratory reports are presented in Appendix F.

The granular soils above the clay confining layer are generally classified as a fine to coarse sand with a trace to some silt and clay, and have the Unified Soil Classification System (USCS) symbols of SP, SP-SM, and SM. The clay confining layer is generally classified as clay with a USCS symbol of CL.

According to the rigid-wall falling head permeability testing (U.S. Army Corps of Engineers Method EM 1110-2-1906 (VII)), the permeability of the clay confining layer ranged from 1.7×10^{-8} cm/s (centimeters per second) to 2.4×10^{-8} cm/s based on relatively undisturbed Shelby tube samples. Liquid and plasticity limits ranged from 28-30% and 11-14%, respectively (Table 3).

As discussed in Section 3.4, the results of the flexible-wall hydraulic conductivity/permeability tests (ASTM D5084) are not available at this time. These results will be submitted to the U.S. EPA on April 19, 1996.

PILOT TEST CELL BORINGS

In accordance with the expedited Pre-Design Work Plan, sheet piling will be used to construct two small test cells for conducting pilot studies. One test cell will be constructed in the waste in the Still Bottoms/Treatment Lagoon area on the ACS site, and the other will be constructed in the waste area in the Off-Site Containment Area. Four soil borings were made at each location to evaluate the subsurface conditions and aid in the design of the test cells. Soil borings, SB145 through SB148, were advanced approximately two feet into the clay confining layer in the Still Bottoms/Treatment Lagoon Area and soil borings (SB224 through SB227) were advanced in the Off-Site Containment Area for the pilot test cell locations. The locations of the pilot test cells and borings are presented in Figure 6. Soil boring logs for the Pilot Test Cell borings are presented in Appendix B2.

Based on Standard Penetration Tests (i.e., blow counts), conducted during boring installation (ASTM D1586), the soil materials at both pilot cell locations was classified as loose to medium dense granular soils. Field lithologic logging identified the soils at the Still Bottoms/Treatment Lagoon Area pilot test cell plots as fine to coarse sands with little silt, and generally fine sands and fill material in the Off-Site Containment Area.

Both locations for test cells were selected to be in known waste areas. As expected, some obstructions were encountered during the boring program at both locations. In the Still Bottoms/Treatment Lagoon area, several 1.5 foot thick concrete slabs were encountered one to two feet below the ground surface. As a result of the auger refusal, the borings were moved to the east from the originally planned location. Figure 6 shows the location of the borings that were made to the clay confining layer. In the Off-Site Containment area, several partially-intact metal objects (5 gallon containers and possible drums) were observed in the fill material generally 5 to 8 feet below ground surface.

SCHEDULE FOR BARRIER WALL CONSTRUCTION

A milestone and deliverable date schedule for barrier wall construction is presented in Table 4. The schedule is based on assumed review times by the U.S. EPA. Concurrent with submittal of this Technical Memorandum to the U.S. EPA, an RFP will be submitted to subcontractors soliciting proposals for barrier wall construction technologies.

Following U.S. EPA approval of the proposed barrier wall alignment, the design of the barrier wall systems will commence. The barrier wall systems include the barrier wall, the groundwater extraction systems, and the performance monitoring system. In addition, the design of the test cells to be used for the SVE and material handling/low temperature thermal desorption pilot tests will be included with the barrier wall systems. A 50 Percent Design and 100 Percent Design will be submitted to U.S. EPA and IDEM for review. As discussed with and approved by the U.S. EPA, the 50 Percent and 100 Percent design documents will meet the requirements for the 30, 60 and 95 Percent design submittals included in the SOW.

The 50 Percent Design document will be submitted once the barrier wall technology and contractor have been selected. That selection is expected to be made on June 19, 1996. The submittal will include the following:

1. A draft of the design basis for all the systems listed above. The design basis will provide a brief description of the design criteria, rationale for major decisions, major equipment, permits/approvals required, effects on groundwater flow patterns, operational procedures, and management of waste and residuals. The design basis will not be complete at this stage since many aspects of the designs will not be resolved or finalized.
2. Barrier Wall Design
 - The performance specification used to solicit contractor bids
 - Drawings showing the final alignment and cross sections
 - A Technical Memorandum presenting the selected barrier wall technology (this will actually be part of the design basis)
3. Extraction System Design
 - A plan drawing showing the layout of the extraction systems
 - A plan drawing showing the conveyance piping
 - Draft details of the extraction wells/trenches

4. Performance Monitoring System Design
 - A draft of the Performance Standard Verification Plan (PSVP)
 - A plan drawing showing the location of the monitoring wells/piezometers
5. Test Cell Design
 - A draft of the specification for the test cells
 - A plan drawings of the test cell
 - A geologic cross-section (if needed)
 - Draft details of the sheet pile construction
6. A draft Health and Safety Plan for the construction
7. A draft Construction Quality Assurance Plan (CQAP)
8. Preliminary Construction Schedule
 - Pre-construction meeting
 - Site preparation and/or workbench construction
 - Start of construction
 - Completion of construction
 - Site restoration

The 100 Percent Design document will be submitted on August 12, 1996 and it will incorporate comments on the 50 Percent Design as well as the finalized designs of the various systems and associated plans. Specifically, the submittal will include the following:

1. The final design basis for the various systems
2. Barrier Wall Design
 - The final design drawings
3. Extraction System Design
 - Final drawings of the extraction wells/trenches, sump or wellhead completions, conveyance piping and tie-ins to the treatment system, and electrical power supply and instrumentation.
4. Performance Monitoring System Design
 - Final drawings showing the locations and construction details for the piezometers/monitoring wells.
 - The final PSVP including the sampling program, a QAPP addendum, and a Health and Safety Plan addendum.
5. Test Cell Design
 - Final design drawings for the test cell layout, location, and construction details
 - A performance specification for dewatering the test cell

6. The final Health and Safety Plan
7. The final CQAP
8. Detailed Construction Schedule
 - Pre-construction meeting
 - Site preparation and/or workbench construction
 - Start of construction
 - Completion of construction
 - Site restoration

The final design of the barrier wall will incorporate all known underground and overhead utilities, pipelines, sewers and drains in the area. Figure 7 shows the final alignment of the wall and all known potentially affected utilities in the vicinity of the ACS facility. Based on deliverable dates established on a milestone basis, the construction of the barrier wall will be completed by February 1997 (Table 4).

J:\407\TECHMEMO\BAR-WALL\BAR-REPT.DOC



Table 1
Soil Boring Location and Elevation Information
American Chemical Service, Inc.
Barrier Wall Investigation
On-Site Containment Area

| Boring Number | Coordinates | | Ground Elevation (msl) | Depth To Clay (ft) | Clay Elevation (msl) |
|---------------|-------------|---------|------------------------|--------------------|----------------------|
| | Northing | Easting | | | |
| SB-101 | 6892.9 | 5253.7 | 637.9 | 19.5 | 618.4 |
| SB-102 | 6873.7 | 5269.6 | 637.8 | 21.0 | 616.8 |
| SB-103 | 6855.1 | 5287.1 | 637.8 | 21.0 | 616.8 |
| SB-104 | 6838.3 | 5304.1 | 637.8 | 20.0 | 617.8 |
| SB-105 | 6817.9 | 5321.3 | 637.8 | 20.0 | 617.8 |
| SB-106 | 6802.1 | 5339.3 | 637.8 | 20.3 | 617.5 |
| SB-107 | 6782.4 | 5356.8 | 637.8 | 19.5 | 618.3 |
| SB-108 | 6764.6 | 5372.8 | 637.6 | 18.5 | 619.1 |
| SB-109 | 7027.3 | 5307.5 | 638.0 | 18.5 | 619.5 |
| SB-110 | 6751.9 | 5660.5 | 638.8 | 21.8 | 617 |
| SB-111 | 6688.6 | 5524.4 | 638.4 | 19.0 | 619.4 |
| SB-112 | 6935.0 | 5575.9 | 639.7 | 19.5 | 620.2 |
| SB-113 | 7065.9 | 5422.2 | 637.8 | 17.6 | 620.2 |
| SB-114 | 7072.6 | 5374.8 | 638.1 | 19.3 | 618.8 |
| SB-115 | 7071.4 | 5328.2 | 638.3 | 19.8 | 618.5 |
| SB-116 | 7054.4 | 5472.4 | 637.5 | 18.6 | 618.9 |
| SB-117 | 6929.2 | 5219.9 | 637.9 | 18.5 | 619.4 |
| SB-118 | 6721.5 | 5620.5 | 639.1 | 24.8 | 614.3 |
| SB-119 | 6708.8 | 5567.4 | 638.8 | 21.7 | 617.1 |
| SB-120 | 6742.0 | 5280.7 | 637.7 | 20.0 | 617.7 |
| SB-121 | 6673.0 | 5476.0 | 638.1 | 21.5 | 616.6 |
| SB-122 | 6971.7 | 5248.3 | 638.1 | 19.1 | 619 |
| SB-123 | 7001.1 | 5274.0 | 638.1 | 19.5 | 618.6 |
| SB-124 | 7023.1 | 5521.0 | 638.6 | 18.5 | 620.1 |
| SB-125 | 6855.0 | 5622.8 | 638.4 | 19.0 | 619.4 |
| SB-126 | 6907.2 | 5615.2 | 638.3 | 19.5 | 618.8 |
| SB-127 | 6960.9 | 5599.7 | 638.3 | 19.0 | 619.3 |
| SB-128 | 6803.1 | 5653.1 | 638.9 | 24.5 | 614.4 |
| SB-129 | 6712.4 | 5268.4 | 636.9 | 18.5 | 618.4 |
| SB-130 | 6652.2 | 5448.6 | 637.9 | 19.5 | 618.4 |
| SB-131 | 6826.5 | 5088.9 | 636.7 | 18.0 | 618.7 |
| SB-132 | 6756.4 | 5174.5 | 637.0 | 19.0 | 618 |
| SB-133 | 6670.7 | 5352.5 | 637.3 | 20.0 | 617.3 |
| SB-134 | 6667.5 | 5402.1 | 637.7 | 20.5 | 617.2 |
| SB-135 | 6737.0 | 5230.1 | 637.1 | 18.5 | 618.6 |
| SB-136 | 6903.5 | 5146.0 | 637.5 | 18.5 | 619 |
| SB-137 | 6985.7 | 5225.5 | 637.6 | 17.5 | 620.1 |
| SB-138 | 6636.5 | 5397.5 | 637.6 | 20.0 | 617.6 |
| SB-139 | 6865.6 | 5117.2 | 637.4 | 18.5 | 618.9 |
| SB-140 | 6956.3 | 5179.7 | 637.6 | 18.5 | 619.1 |
| SB-141 | 6999.3 | 5199.7 | 637.6 | 18.5 | 619.1 |
| SB-142 | 6885.6 | 5641.6 | 638.3 | 19.0 | 619.3 |
| SB-143 | 7078.6 | 5430.1 | 637.6 | 19.5 | 618.1 |
| SB-144 | 6996.0 | 5565.6 | 639.7 | 19.7 | 620 |
| SB-145 | 6797.4 | 5603.5 | 639.6 | 23.5 | 616.1 |
| SB-146 | 6783.8 | 5610.0 | 639.6 | 24.0 | 615.6 |
| SB-147 | 6777.3 | 5597.9 | 639.7 | 24.0 | 615.7 |
| SB-148 | 6785.2 | 5620.0 | 639.5 | 22.5 | 617 |
| SB-149 | 6833.6 | 5764.9 | 638.2 | 19.5 | 618.7 |
| SB-150 | 6452.9 | 5749.4 | 639.0 | 21.0 | 618 |
| SB-151 | 6763.8 | 5890.1 | 638.8 | 20.0 | 618.8 |
| SB-152 | 6606.8 | 5818.6 | 639.2 | 21.0 | 618.2 |

Table 1
Soil Boring Location and Elevation Information
American Chemical Service, Inc.
Barrier Wall Investigation
Off-Site Containment Area

| Boring Number | Coordinates | | Ground Elevation (msl) | Depth To Clay (ft) | Clay Elevation (msl) |
|---------------|-------------|---------|------------------------|--------------------|----------------------|
| | Northing | Easting | | | |
| SB-201 | 5674.8 | 4984.8 | 647.5 | NA | NA |
| SB-202 | 6059.9 | 5011.5 | 640.4 | NA | NA |
| SB-202A | 6077.4 | 5014.5 | 639.9 | 22.0 | 617.9 |
| SB-203 | 6029.0 | 5011.5 | 641.0 | 22.0 | 619 |
| SB-204 | 5964.5 | 5012.0 | 641.9 | 21.8 | 620.1 |
| SB-205 | 5913.8 | 5014.2 | 643.4 | 22.5 | 620.9 |
| SB-205A | 5930.6 | 4988.6 | 645.9 | 26.5 | 619.4 |
| SB-206 | 5856.2 | 5013.4 | 644.6 | 24.0 | 620.6 |
| SB-207 | 5801.1 | 4978.0 | 646.9 | 25.0 | 621.9 |
| SB-208 | 5763.9 | 4960.8 | 646.8 | 25.5 | 621.3 |
| SB-209 | 5715.5 | 4942.1 | 647.4 | 28.0 | 619.4 |
| SB-210 | 5690.0 | 4988.9 | 647.2 | 26.0 | 621.2 |
| SB-211 | 5663.6 | 5186.0 | 650.9 | 29.5 | 621.4 |
| SB-212 | 5758.7 | 5453.6 | 649.4 | 28.0 | 621.4 |
| SB-213 | 5637.8 | 5388.9 | 653.1 | 31.0 | 622.1 |
| SB-214 | 5946.4 | 5523.4 | 647.2 | 26.0 | 621.2 |
| SB-215 | 6126.2 | 5615.5 | 647.9 | 28.5 | 619.4 |
| SB-216 | 6325.7 | 5662.3 | 645.9 | 26.0 | 619.9 |
| SB-217 | 6444.1 | 5602.8 | 639.5 | 22.0 | 617.5 |
| SB-218 | 6517.4 | 5411.0 | 634.7 | 16.0 | 618.7 |
| SB-219 | 6606.9 | 5299.9 | 633.0 | 14.0 | 619 |
| SB-220 | 6496.9 | 5175.7 | 635.4 | 16.0 | 619.4 |
| SB-221 | 6353.9 | 5138.1 | 634.0 | 13.0 | 621 |
| SB-222 | 6223.4 | 5069.4 | 638.6 | 18.5 | 620.1 |
| SB-223 | 6729.8 | 5059.2 | 638.5 | 20.0 | 618.5 |
| SB-224 | 6197.5 | 5301.8 | 646.9 | 27.0 | 619.9 |
| SB-225 | 6208.5 | 5283.1 | 647.3 | 27.0 | 620.3 |
| SB-226 | 6192.7 | 5286.9 | 647.5 | 27.0 | 620.5 |
| SB-227 | 6212.0 | 5297.6 | 646.9 | 27.1 | 619.8 |

Notes:

Coordinates and ground surface elevations surveyed by Area Survey, February 16, 1996.

NA = Not Applicable. Soil boring abandoned before reaching clay confining layer due to refusal.

msl = Mean Sea Level

Table 2
Summary of Soil Borings and Sample Analysis
Conducted Along the Final Barrier Wall Alignment
American Chemical Service, Inc.
Griffith, Indiana

| Soil Boring Number | Sample Depth (ft) Interval | PCB Analytical Results | | VOC Analytical Results | |
|--------------------|----------------------------|-------------------------|-----------------------|------------------------|-----------------------|
| | | Field PCB Results (ppm) | IEA Lab Results (ppm) | Field GC Results (ppm) | IEA Lab Results (ppm) |
| SB109 | 13 to 15 | ND | NA | 1.3 | NA |
| SB113 | 7 to 9 | 17.3 | 4.13 | 42 | NA |
| SB113 | 9 to 11 | ND | NA | 2.3 | NA |
| SB114 | 3.5 to 5.5 | 1.9 | NA | 1.1 | NA |
| SB114 | 8.5 to 10.5 | 1.4 | NA | 1 | NA |
| SB115 | 3.5 to 5.5 | ND | NA | 2 | NA |
| SB115 | 6 to 8 | ND | NA | NA | NA |
| SB116 | 1 to 3 | NA | NA | 106 | NA |
| SB116 | 3.5 to 5.5 | ND | NA | NA | NA |
| SB116 | 6 to 8 | 1.5 | NA | ND | NA |
| SB124 | 6 to 8 | ND | NA | NA | NA |
| SB124 | 8.5 to 10.5 | 5.2 | 6.11 | NA | NA |
| SB124 | 11 to 13 | NA | NA | 51.6 | NA |
| SB126 | 3.5 to 5.5 | NA | NA | 206.8 | NA |
| SB126 | 11 to 13 | 7.6 | NA | 269.3 | NA |
| SB127 | 6 to 8 | 8.5 | 44 | NA | NA |
| SB127 | 8.5 to 10 | ND | NA | 352.7 | NA |
| SB131 | 6 to 8 | ND | NA | NA | NA |
| SB131 | 8.5 to 10 | NA | NA | NA | NA |
| SB131 | 13.5 to 15.5 | NA | NA | 11 | NA |
| SB136 | 5 to 7 | ND | NA | NA | NA |
| SB136 | 17 to 19 | NA | NA | 25.6 | NA |
| SB139 | 6 to 8 | 2.8 | NA | NA | NA |
| SB139 | 16 to 18 | NA | NA | 26 | NA |
| SB140 | 6 to 8 | NA | NA | ND | NA |
| SB140 | 8.5 to 10.5 | ND | NA | NA | NA |
| SB141 | 3.5 to 5.5 | NA | NA | 1.2 | NA |
| SB141 | 6 to 8 | ND | NA | NA | NA |
| SB141 | 8.5 to 10.5 | 1.5 | NA | NA | NA |
| SB142 | 6 to 8 | ND | NA | 5,168 | 335 |
| SB142 | 8.5 to 10.5 | ND | NA | NA | NA |
| SB143 | 6 to 8 | 13.9 | 2.9 | 11,583 | 0.76 |
| SB143 | 8.5 to 10.5 | 16.4 | 1.99 | 11.9 | NA |
| SB144 | 8.5 to 10.5 | 8.3 | NA | 141 | NA |
| SB144 | 11 to 13 | 7.4 | NA | NA | NA |
| SB149 | 8.5 to 10.5 | 10.1 | 0.86 | 6.1 | NA |
| SB149 | 16 to 18 | 14.4 | ND | NA | NA |
| SB150 | 6 to 8 | >50 | 0.69 | ND | NA |
| SB151 | 5 to 7 | 14.4 | ND | NA | NA |
| SB151 | 9 to 11 | 13.9 | ND | NA | NA |
| SB151 | 19 to 21 | NA | NA | 70 | NA |
| SB152 | 7 to 9 | 15.0 | ND | NA | NA |
| SB152 | 9 to 11 | 33.0 | ND | NA | NA |

Table 2 continued
Summary of Soil Borings and Sample Analysis
Conducted Along the Final Barrier Wall Alignment
American Chemical Service, Inc.
Griffith, Indiana

| Soil Boring Number | Sample Depth (ft) Interval | PCB Analytical Results | | VOC Analytical Results | |
|--------------------|----------------------------|-------------------------|-----------------------|------------------------|-----------------------|
| | | Field PCB Results (ppm) | IEA Lab Results (ppm) | Field GC Results (ppm) | IEA Lab Results (ppm) |
| SB202A | 13.5 to 15.5 | ND | NA | NA | NA |
| SB202A | 16 to 18 | ND | NA | 0.9 | NA |
| SB203 | 13.5 to 15.5 | 1.1 | NA | 2.7 | NA |
| SB203 | 16 to 18 | ND | NA | 3.2 | NA |
| SB204 | 13.5 to 15.5 | ND | NA | 1.1 | NA |
| SB204 | 16 to 18 | ND | NA | 2.7 | NA |
| SB205 | 3.5 to 5.5 | NA | NA | 111,639 | NA |
| SB205 | 6 to 8 | NA | NA | 937 | NA |
| SB206 | 5 to 7 | ND | NA | 4 | NA |
| SB206 | 7 to 9 | ND | NA | 3.6 | NA |
| SB207 | 13.5 to 15.5 | ND | NA | ND | NA |
| SB207 | 16 to 18 | ND | NA | 1.1 | NA |
| SB207 | 21 to 23 | ND | NA | 1.1 | NA |
| SB208 | 11 to 13 | 1.2 | NA | ND | NA |
| SB208 | 23.5 to 25.5 | ND | NA | ND | NA |
| SB209 | 16 to 18 | ND | NA | 0.4 | NA |
| SB209 | 18.5 to 20.5 | ND | NA | 2.6 | NA |
| SB210 | 16 to 18 | ND | NA | 5.1 | NA |
| SB210 | 18.5 to 20.5 | ND | NA | 3 | NA |
| SB211 | 8.5 to 10.5 | ND | NA | 0.3 | NA |
| SB211 | 18.5 to 20.5 | ND | NA | 0.8 | NA |
| SB212 | 19 to 21 | ND | NA | 6 | NA |
| SB212 | 23 to 25 | NA | NA | 16 | NA |
| SB213 | 23.5 to 25.5 | ND | NA | 0.9 | NA |
| SB213 | 26 to 28 | NA | NA | 4.4 | NA |
| SB214 | 13.5 to 15.5 | 10.6 | 2.7 | NA | NA |
| SB214 | 16 to 18 | NA | NA | 2.2 | NA |
| SB214 | 18.5 to 20.5 | ND | NA | NA | NA |
| SB214 | 21 to 23 | NA | NA | 9.5 | NA |
| SB215 | 17 to 19 | ND | NA | 397 | NA |
| SB215 | 19 to 21 | ND | NA | 1.7 | NA |
| SB216 | 13.5 to 15.5 | ND | NA | 13 | NA |
| SB220 | 8.5 to 10.5 | ND | NA | 3 | NA |
| SB220 | 11 to 13 | ND | NA | 7.4 | NA |
| SB221 | 9 to 11 | ND | NA | 152 | NA |
| SB221 | 11 to 13 | ND | NA | 89 | NA |
| SB222 | 13.5 to 15.5 | ND | NA | 65 | NA |
| SB223 | 18.5 to 20.5 | 7.3 | NA | 1 | NA |

Notes:

Concentrations reported in parts per million (ppm)

NA - Not Analyzed

ND - Not Detected

Bold indicates an exceedence of the waste criteria as defined in the Barrier Wall Work Plan

Table 3
Geotechnical Laboratory Results Summary
Barrier Wall Alignment Report
American Chemical Service, Inc.
Griffith, Indiana

| Soil Boring Number | Sample Number | Coordinates | | Sample Depth (ft) | Liquid Limit (%) | Plasticity Index (%) | Gravel Content (%) | Sand Content (%) | P200 Content (%) | USCS | Permeability (cm/s) |
|--------------------|---------------|-------------|------|-------------------|------------------|----------------------|--------------------|------------------|------------------|-------|---------------------|
| SB-212 | SS4 | 5759 | 5454 | 7-9 | NA | NA | 0.0 | 86.9 | 13.1 | SM | NA |
| SB-212 | SS9 | 5759 | 5454 | 17-19 | NA | NA | 5.5 | 87.1 | 7.4 | SW-SM | NA |
| SB-215 | SS5 | 6126 | 5615 | 9-11 | NA | NA | 4.0 | 87.5 | 8.5 | SP-SM | NA |
| SB-215 | SS10 | 6126 | 5615 | 19-21 | NA | NA | 19.8 | 76.5 | 3.7 | SP | NA |
| SB-217 | SS4 | 6444 | 5603 | 7-9 | NA | NA | 32.4 | 62.1 | 5.5 | SP-SM | NA |
| SB-217 | SS10 | 6444 | 5603 | 19-21 | NA | NA | 0.9 | 83.9 | 15.2 | SM | NA |
| SB-206 | SS4 | 5856 | 5013 | 7-9 | NA | NA | 0.2 | 92.0 | 7.8 | SP-SM | NA |
| SB-206 | SS7 | 5856 | 5013 | 13-15 | NA | NA | 0.0 | 90.9 | 9.1 | SP-SM | NA |
| SB-151 | SS5 | 6764 | 5890 | 9-11 | NA | NA | 14.2 | 82.4 | 3.4 | SP | NA |
| SB-151 | SS7 | 6764 | 5890 | 13-15 | NA | NA | 9.2 | 87.6 | 3.2 | SP | NA |
| SB-152 | SS3 | 6607 | 5819 | 5-7 | NA | NA | 5.7 | 87.2 | 7.1 | SP-SM | NA |
| SB-152 | SS10 | 6607 | 5819 | 19-21 | NA | NA | 11.5 | 76.3 | 12.2 | SM | NA |
| SB-221 | SS2 | 6354 | 5138 | 3-5 | NA | NA | 0.0 | 90.5 | 9.5 | SP-SM | NA |
| SB-221 | SS5 | 6354 | 5138 | 9-11 | NA | NA | 0.2 | 87.5 | 12.3 | SM | NA |
| SB-109 | SS3 | 7027 | 5308 | 5-7 | NA | NA | 0.0 | 96.6 | 3.4 | SP | NA |
| SB-109 | SS8 | 7027 | 5308 | 15-17 | NA | NA | 11.4 | 80.6 | 8.0 | SP-SM | NA |
| SB-136 | SS2 | 6904 | 5146 | 3-5 | NA | NA | 2.0 | 93.0 | 5.0 | SP-SM | NA |
| SB-136 | SS6 | 6904 | 5146 | 11-13 | NA | NA | 4.2 | 88.4 | 7.4 | SP-SM | NA |
| SB-113 | SS5 | 7066 | 5422 | 9-11 | NA | NA | 0.5 | 92.3 | 7.2 | SP-SM | NA |
| SB-113 | SS6 | 7066 | 5422 | 11-13 | NA | NA | 8.4 | 88.0 | 3.6 | SP | NA |
| SB-112 | SS5 | 6935 | 5576 | 9-11 | NA | NA | 8.1 | 74.9 | 17.0 | SM | NA |
| SB-112 | SS8 | 6935 | 5576 | 15-17 | NA | NA | 0.4 | 95.0 | 4.6 | SP | NA |
| SB-109 | ST | 7027 | 5308 | 19-21 | 30 | 14 | 1.9 | 7.9 | 90.2 | CL | 1.70E-08 |
| SB-151 | ST | 6764 | 5890 | 23-25 | 29 | 11 | 0.9 | 12.1 | 87.0 | CL | 2.00E-08 |
| SB-206 | ST | 5856 | 5013 | 25.5-27.5 | 28 | 12 | 3.3 | 14.3 | 82.4 | CL | 1.80E-08 |
| SB-212 | ST | 5759 | 5454 | 29-31 | 28 | 11 | 0.7 | 10 | 89.3 | RP | 2.40E-08 |

Notes:

ST = Shelby tube sample

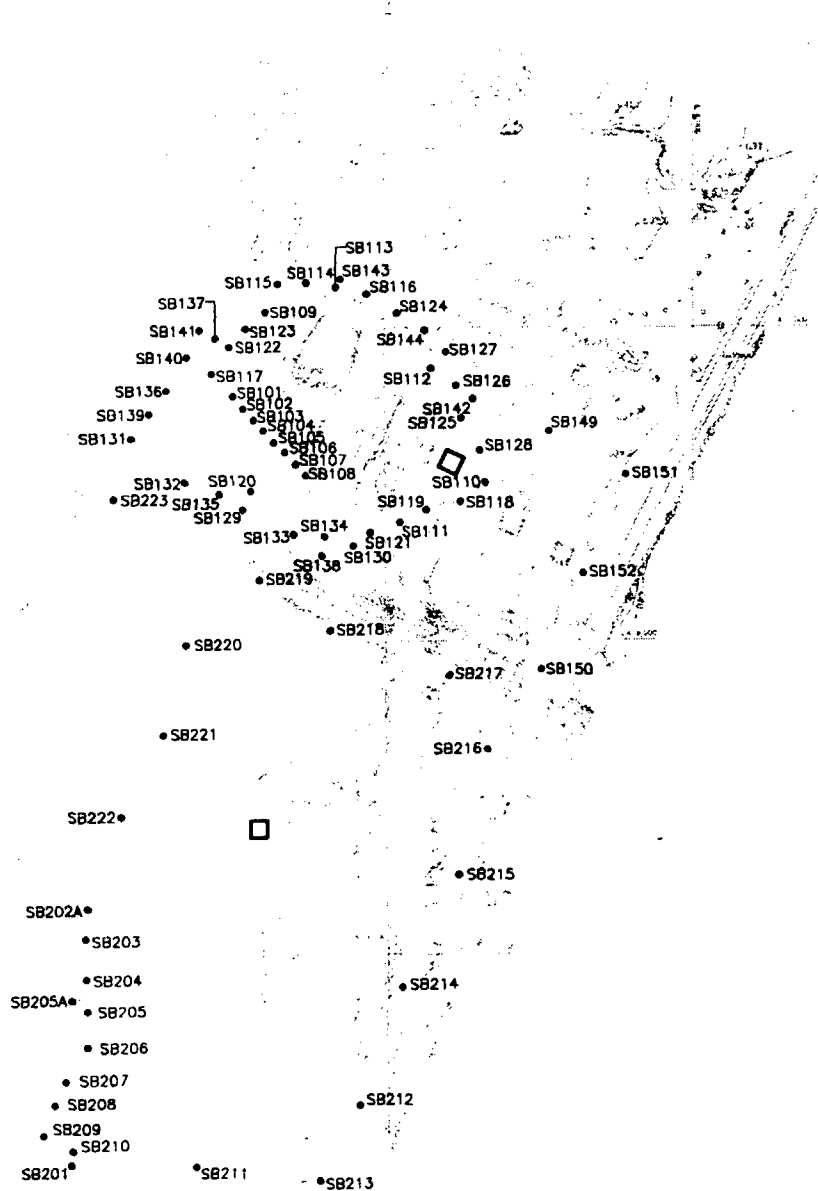
NA = Test not applicable to this sample

Table 4
Schedule for Barrier Wall Construction
American Chemical Services, Inc.
Griffith, Indiana

| Deliverable/Event | Proposed Due Date | Comment |
|---------------------------------------------------------|------------------------------|--------------------------------------------|
| Submit Barrier Wall Alignment Report to EPA | 1-Apr-96 | |
| Approval of Alignment Report / Authorization to Proceed | 21-Apr-96 | 20 Days after submitting report |
| Receive Proposals from Subcontractors | 9-May-96 | |
| Select Subcontractor and Barrier Technology | 29-May-96 | |
| Submit "50% Design" Document to U.S. EPA | 19-Jun-96 | 59 days after Approval of Alignment Report |
| U.S. EPA provides Review Comments on "50 Design" | 19-Jul-96 | 30 days after receiving 50% Design |
| Submit 100% Design to EPA | 12-Aug-96 | 24 days after EPA Receipt of Comment |
| Receive EPA Approval of 100% Design | 26-Aug-96 | EPA reviews Final Design in 14 Days |
| Complete Barrier Wall Construction | 1-Feb-97 | 159 days after EPA Approval of Design |

Note:

Dates after April 1, 1996 are based on assumed EPA review times.



- PILOT TEST CELL
- SB2222 BARRIER WALL SOIL BORING LOCATION AND NUMBER
- RAILROAD TRACK
- TOPOGRAPHIC CONTOUR

NOTES

1. BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC.
2. VERTICAL DATUM IS U.S.G.S. DATUM. CONTOUR INTERVAL IS 2 FEET.
3. SOIL BORINGS PERFORMED JANUARY 17, 1996 THROUGH FEBRUARY 12, 1996, BY ENVIRONMENTAL AND FOUNDATION DRILLING.
4. SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12 AND 16, 1996, BY AREA SURVEY.

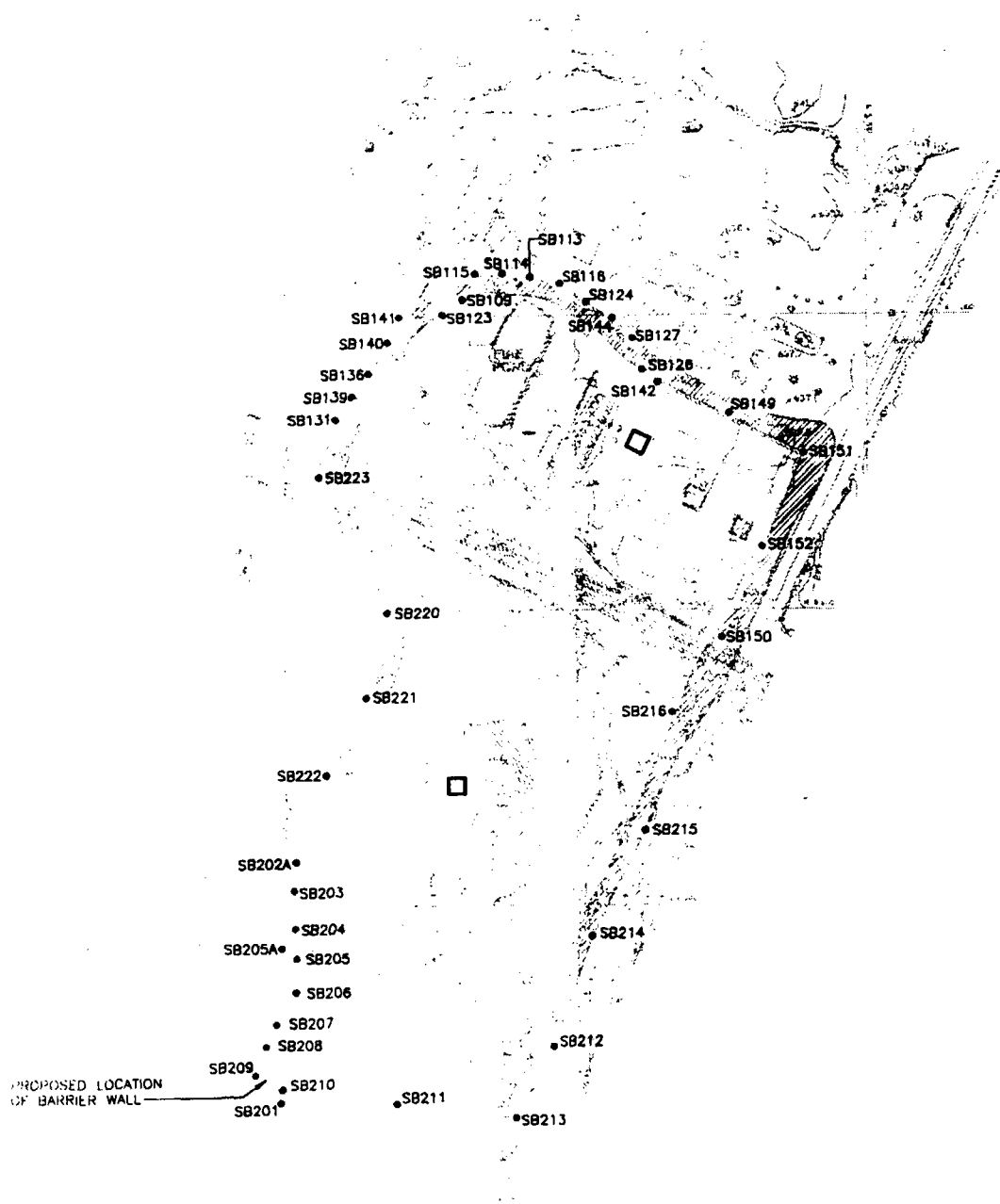


FIGURE 1

Developed By *PJV* Drawn By *DLF*
 Approved By *PJV* Date *3/28/96*
 Reference
 Revisions

SOIL BORING LOCATION MAP
 BARRIER WALL ALIGNMENT INVESTIGATION
 AMERICAN CHEMICAL SERVICE, INC.
 NPL SITE
 GRIFFITH, INDIANA

Drawing Number
 4077.0075 **B1**
MONTGOMERY
WATSON



- PILOT TEST CELL
- SB222 BARRIER WALL SOIL BORING LOCATION AND NUMBER
- ▨ APPROXIMATE LOCATION OF BARRIER WALL
- RAILROAD TRACK
- TOPOGRAPHIC CONTOUR

NOTES

1. BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC.
2. VERTICAL DATUM IS U.S.G.S. DATUM. CONTOUR INTERVAL IS 2 FEET.
3. FINAL BARRIER WALL LOCATION IS BASED ON RESULTS OF SOIL BORING PROGRAM.
4. SOIL BORINGS PERFORMED JANUARY 17, 1996 THROUGH FEBRUARY 12, 1996, BY ENVIRONMENTAL AND FOUNDATION DRILLING.
5. SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12 AND 16, 1996, BY AREA SURVEY.

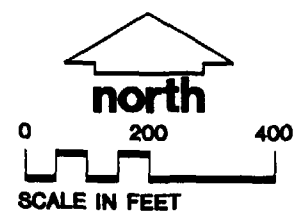


FIGURE 2

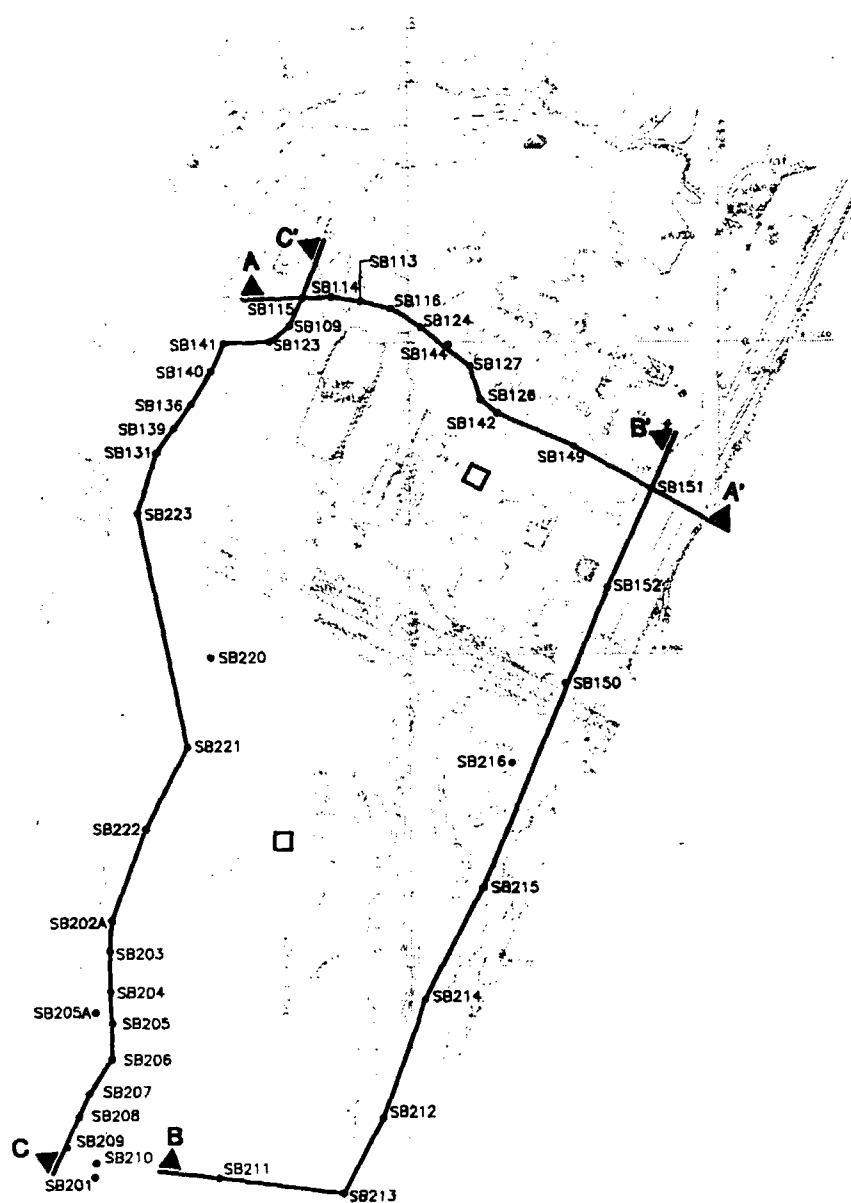
| | | | |
|--------------|-----|----------|---------|
| Developed By | PJV | Drawn By | DLF/LCL |
| Approved By | PJV | Date | 3/28/96 |
| Reference | | | |
| Revisions | | | |

BARRIER WALL ALIGNMENT

BARRIER WALL ALIGNMENT INVESTIGATION
 AMERICAN CHEMICAL SERVICE, INC.
 NPL SITE
 GRIFFITH, INDIANA

Drawing Number
 4077.0075 B2

MONTGOMERY WATSON



- PILOT TEST CELL
- SB222 BARRIER WALL SOIL BORING LOCATION AND NUMBER
- RAILROAD TRACK
- - - TOPOGRAPHIC CONTOUR
- ▲ CROSS SECTION LOCATION

NOTES

1. BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC.
2. VERTICAL DATUM IS U.S.G.S. DATUM. CONTOUR INTERVAL IS 2 FEET.
3. SOIL BORINGS PERFORMED JANUARY 17, 1996 THROUGH FEBRUARY 12, 1996, BY ENVIRONMENTAL AND FOUNDATION DRILLING.
4. SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12 AND 16, 1996, BY AREA SURVEY.

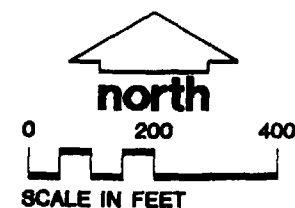
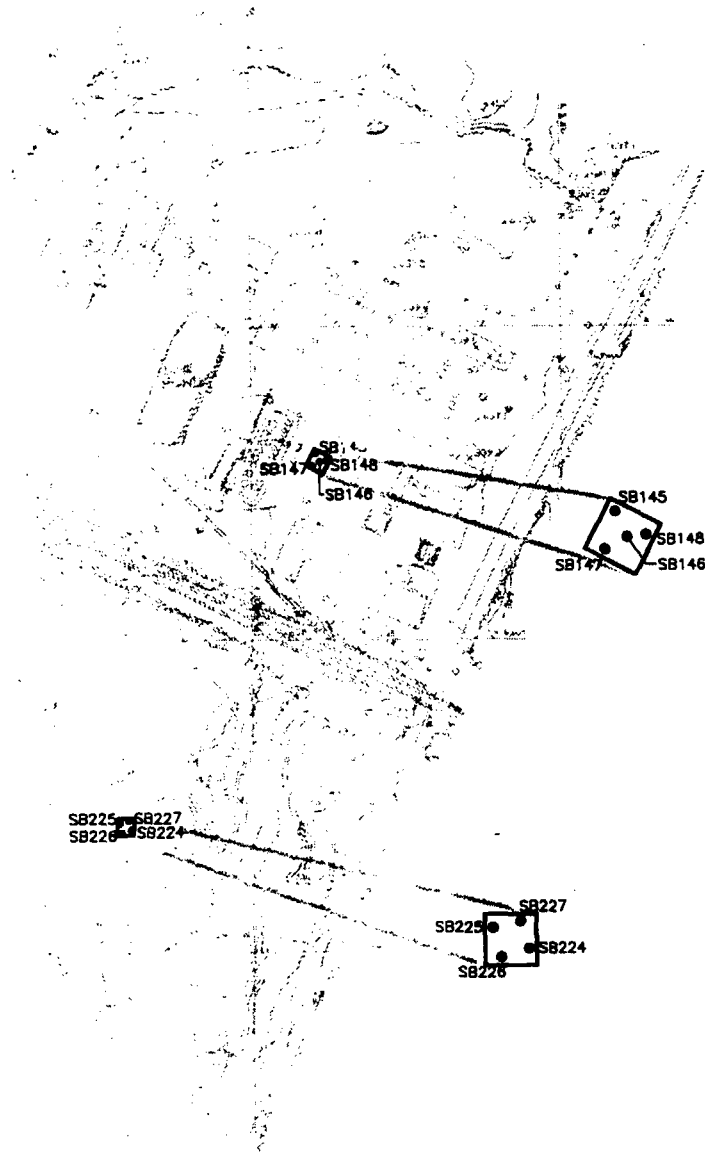


FIGURE 3

Developed By PJV
 Drawn By DLF
 Approved By PJV
 Date 3/28/96
 Reference
 Revisions

CROSS SECTION LOCATION MAP
 BARRIER WALL ALIGNMENT INVESTIGATION
 AMERICAN CHEMICAL SERVICE, INC.
 NPL SITE
 GRIFFITH, INDIANA

Drawing Number
 4077.0075 B3
 MONTGOMERY
 WATSON



- PILOT TEST CELL
- SB224 PILOT TEST CELL SOIL BORING LOCATION AND NUMBER
- RAILROAD TRACK
- TOPOGRAPHIC CONTOUR

NOTES

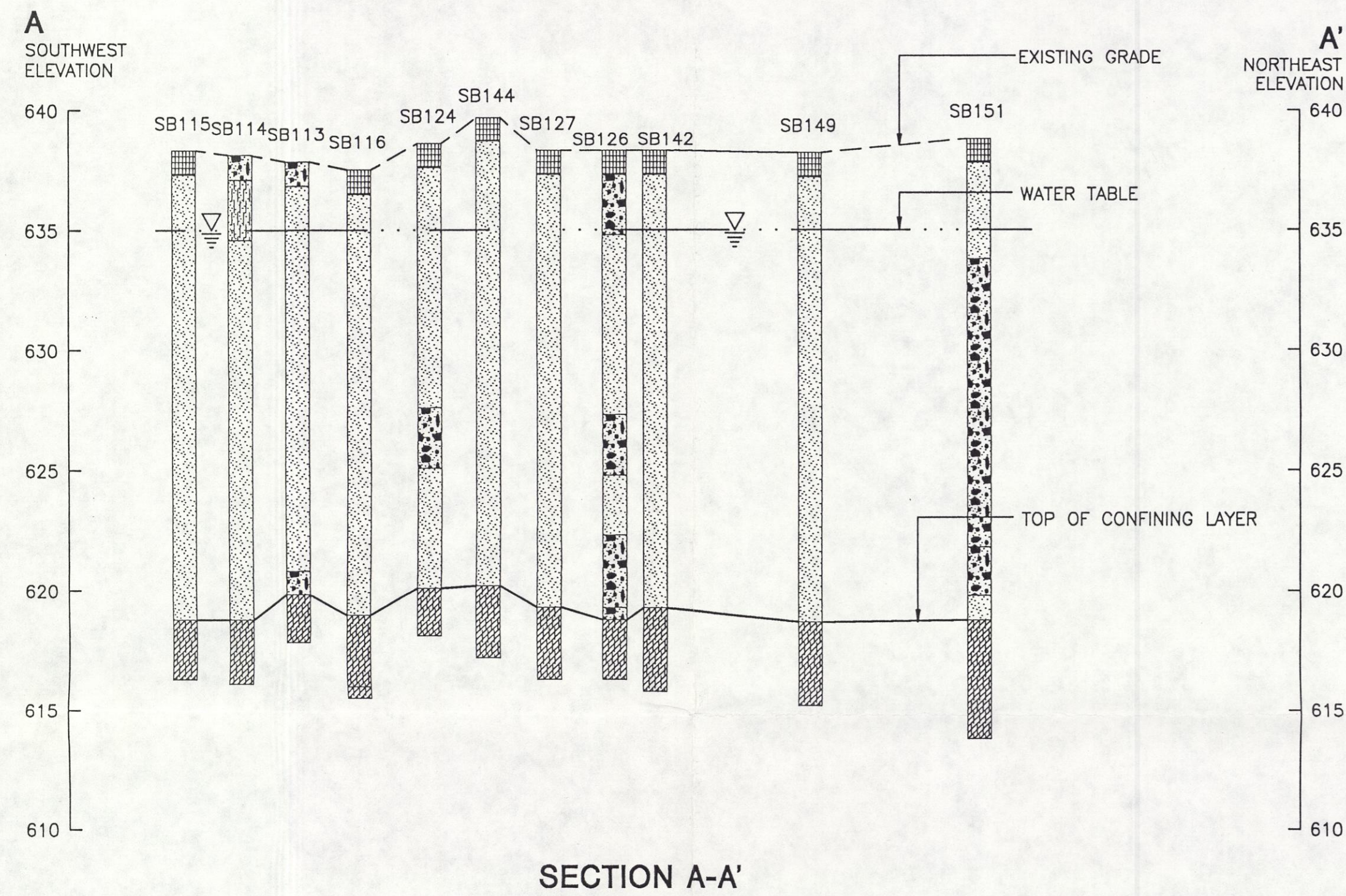
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2. VERTICAL DATUM IS U.S.G.S. DATUM. CONTOUR INTERVAL IS 2 FEET.
3. SOIL BORINGS PERFORMED JANUARY 17, 1996 THROUGH FEBRUARY 12, 1996, BY ENVIRONMENTAL AND FOUNDATION DRILLING.
4. SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12 AND 16, 1996, BY AREA SURVEY.



FIGURE 6

This document has been developed for a specific project and is not to be used for any other project without the written approval of Montgomery Watson.

Management Review
Other
Technical Review
Project Manager
Graphic Standards
Lead Professional
Quality Control

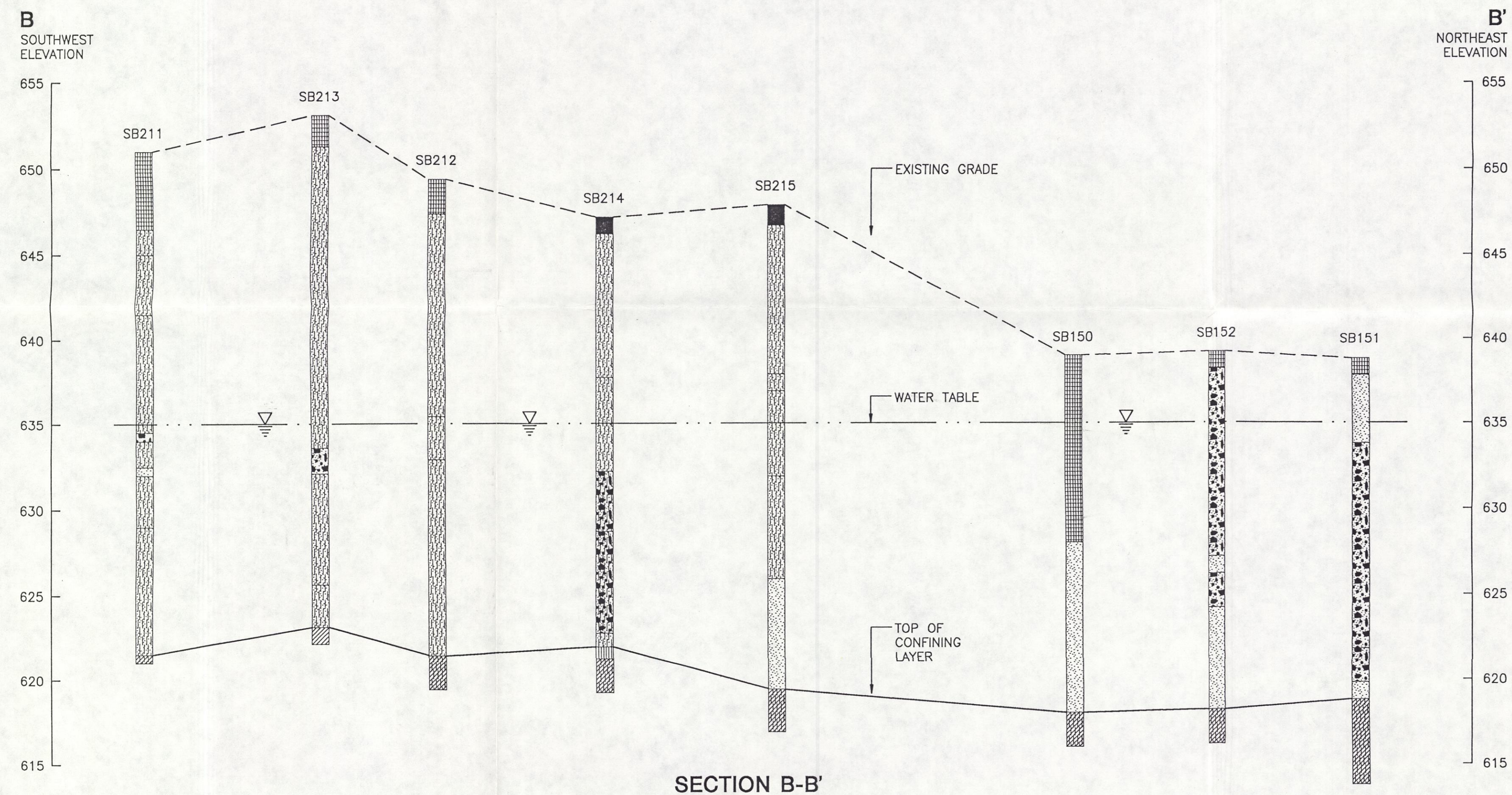


LEGEND

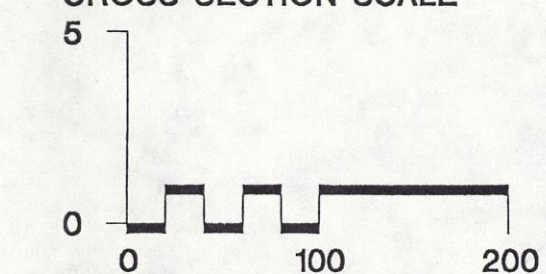
- SAND WITH LOW SILT AND CLAY CONTENT (SP OR SW), MAY ALSO INCLUDE SW-SM, SW-SC, SP-SM AND SP-SC
- SILTY SAND (SM), MAY ALSO INCLUDE SP-SM AND SW-SM
- SAND AND GRAVEL WITH LOW SILT AND CLAY CONTENT (SP/GP OR SW/GW), MAY ALSO INCLUDE SW-SM/GW-GM, SW-SC/GW-GC, SP-SM/GP-GM, AND SP-SC/GP-GC
- SAND AND GRAVEL, SOME SILT (SM/GM), MAY ALSO INCLUDE SW-SM/GW-GM, SP-SM/GP-GM AND SM/GM
- TOPSOIL
- FILL
- REFUSE
- SILT, NON-PLASTIC OR LOW PLASTICITY (ML)
- SILTY CLAY, LOW PLASTICITY (CL-ML)
- LEAN CLAY, MODERATE PLASTICITY (CL)
- WATER TABLE

NOTES

- THE STRATUM LINES ARE BASED ON INTERPOLATION BETWEEN BORINGS AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS.
- FOR THE PURPOSE OF ILLUSTRATING SUBSOIL CONDITIONS ON THE CROSS SECTIONS, SOME OF THE BORING LOGS HAVE BEEN SIMPLIFIED. FOR A DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT INDIVIDUAL BORINGS, REFER TO SOIL BORING LOGS, APPENDIX B OF TEXT.
- HORIZONTAL DISTANCES ARE MEASURED WITH RESPECT TO THE CENTER OF EACH SOIL BORING LOCATION.
- EXISTING GROUND SURFACE WAS TAKEN FROM DRAWING 4077.0075-B3, FIGURE 3.
- ELEVATIONS ARE SHOWN IN REFERENCE TO U.S.G.S. DATUM.
- WATER TABLE ELEVATIONS ARE AN AVERAGE WATER LEVEL THAT WAS CALCULATED FROM WATER LEVELS OBSERVED DURING THE RI FROM AUGUST 17, 1989 TO SEPTEMBER 13, 1990.
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- SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12, AND 16, 1996, BY AREA SURVEY.



CROSS SECTION SCALE



SCALE IN FEET
VERTICAL EXAGGERATION: TWENTY TIMES

CROSS SECTION A-A'
CROSS SECTION B-B'
BARRIER WALL ALIGNMENT INVESTIGATION
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Printed
MAR 28 1996
Sheet Number
1 of 2
Drawing Number
4077.0075 D1
MONTGOMERY
WATSON

Developed By VJR
Approved By RJV
Reference
Consultants
Drawn By LCL
Date 3/28/96

FIGURE 4

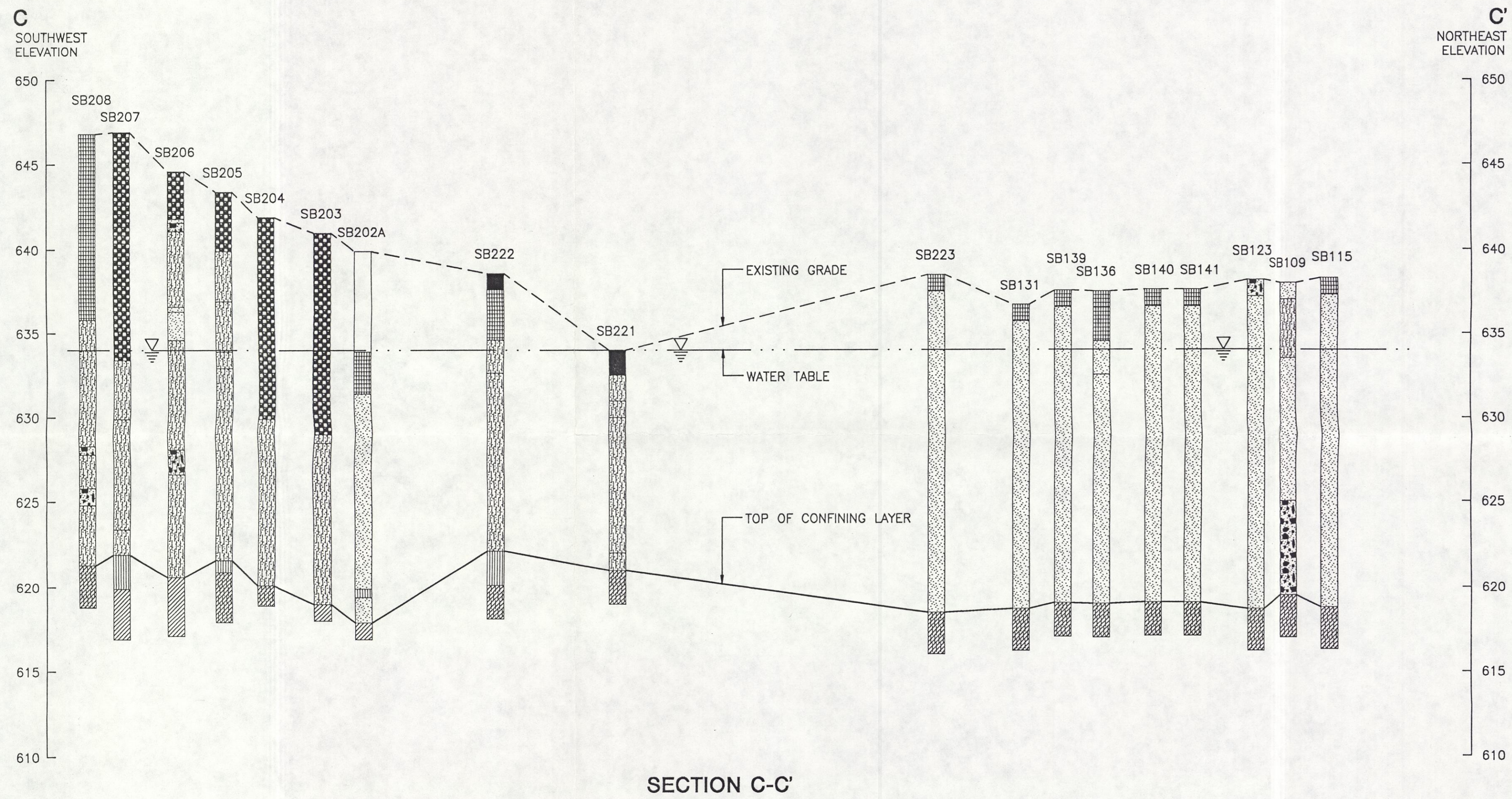
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Management Review
Other

Technical Review
Project Manager

Quality Assurance
Control
Lead Professional

Design
Lead Professional



SECTION C-C'

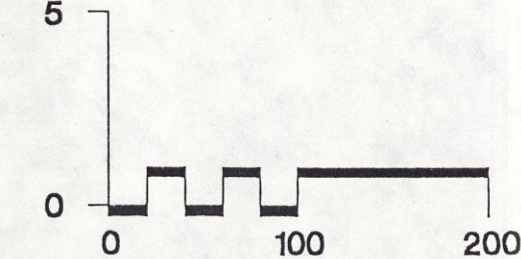
LEGEND

- SAND WITH LOW SILT AND CLAY CONTENT (SP OR SW), MAY ALSO INCLUDE SW-SM, SW-SC, SP-SM AND SP-SC
- SILTY SAND (SM), MAY ALSO INCLUDE SP-SM AND SW-SM
- SAND AND GRAVEL WITH LOW SILT AND CLAY CONTENT (SP/GP OR SW/GW), MAY ALSO INCLUDE SW-SM/GW-GM, SW-SC/GW-GC, SP-SM/GP-GM, AND SP-SC/GP-GC
- SAND AND GRAVEL, SOME SILT (SM/GM), MAY ALSO INCLUDE SW-SM/GW-GM, SP-SM/GP-GM AND SM/GM
- TOPSOIL
- FILL
- REFUSE
- SILT, NON-PLASTIC OR LOW PLASTICITY (ML)
- SILTY CLAY, LOW PLASTICITY (CL-ML)
- LEAN CLAY, MODERATE PLASTICITY (CL)
- WATER TABLE

NOTES

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- SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12, AND 16, 1996, BY AREA SURVEY.

CROSS SECTION SCALE



SCALE IN FEET
VERTICAL EXAGGERATION: TWENTY TIMES

CROSS SECTION C-C'

BARRIER WALL ALIGNMENT INVESTIGATION
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

| | |
|-------------------|--------------|
| Printed | MAR 28 1996 |
| Sheet Number | 2 of 2 |
| Drawing Number | 4077.0075 D2 |
| MONTGOMERY WATSON | |

| | | | |
|--------------|-----|----------|---------|
| Developed By | VJR | Drawn By | LCL |
| Approved By | PJV | Date | 3/28/96 |
| Reference | | | |
| Consultants | | | |

FIGURE 5

A



A

AREA SURVEY REPORT



Area Survey Company

11340 West 159th Street Orland Park, Illinois 60462 • Phone (708) 349-7364 • FAX (708) 349-7372

MARCH 20, 1996

MR. DAVID PIECZYNSKI
MONTGOMERY WATSON

ENCLOSED PLEASE FIND THE SOIL BORING REPORT FOR
AMERICAN CHEMICAL SERVICES IN GRIFFITH, IND.

ON MARCH 20, 1996, THIS REPORT WAS FAXED TO
KEITH SCHILING AT MONTGOMERY WATSON.

Jan Braverman

JAN

SOIL BORING LOCATION REPORT
AMERICAN CHEMICAL SERVICES, INC.
GRIFFITH, INDIANA

PAGE 1

| BORING | NORTH | EAST | ELEVATION |
|--------|--------|--------|-----------|
| 101 | 6892.9 | 5253.7 | 637.9 |
| 102 | 6873.7 | 5269.6 | 637.8 |
| 103 | 6855.1 | 5287.1 | 637.8 |
| 104 | 6838.3 | 5304.1 | 637.8 |
| 105 | 6817.9 | 5321.3 | 637.8 |
| 106 | 6802.1 | 5339.3 | 637.8 |
| 107 | 6782.4 | 5356.8 | 637.8 |
| 108 | 6764.6 | 5372.8 | 637.6 |
| 109 | 7027.3 | 5307.5 | 638.0 |
| 110 | 6751.9 | 5660.5 | 638.8 |
| 111 | 6688.6 | 5524.4 | 638.4 |
| 112 | 6935.0 | 5575.9 | 639.7 |
| 113 | 7065.9 | 5422.2 | 637.8 |
| 114 | 7072.6 | 5374.8 | 638.1 |
| 115 | 7071.4 | 5328.2 | 638.3 |
| 116 | 7045.4 | 5472.4 | 637.5 |
| 117 | 6929.2 | 5219.9 | 637.9 |
| 118 | 6721.5 | 5620.5 | 639.1 |
| 119 | 6708.8 | 5567.4 | 638.8 |
| 120 | 6742.0 | 5280.7 | 637.7 |
| 121 | 6673.0 | 5476.0 | 638.1 |
| 122 | 6971.7 | 5248.3 | 638.1 |
| 123 | 7001.1 | 5274.0 | 638.1 |
| 124 | 7023.1 | 5521.0 | 638.6 |
| 125 | 6855.0 | 5622.8 | 638.4 |
| 126 | 6907.2 | 5615.2 | 638.3 |
| 127 | 6960.9 | 5599.7 | 638.3 |
| 128 | 6803.1 | 5653.1 | 638.9 |

SOIL BORING LOCATION REPORT
AMERICAN CHEMICAL SERVICES, INC.
GRIFFITH, INDIANA

PAGE 2

| BORING | NORTH | EAST | ELEVATION |
|--------|--------|--------|-----------|
| 129 | 6712.4 | 5268.4 | 636.9 |
| 130 | 6652.2 | 5448.6 | 637.9 |
| 131 | 6826.5 | 5088.9 | 636.7 |
| 132 | 6756.4 | 5174.5 | 637.0 |
| 133 | 6670.7 | 5352.5 | 637.3 |
| 134 | 6667.5 | 5402.1 | 637.7 |
| 135 | 6737.0 | 5230.1 | 637.1 |
| 136 | 6903.5 | 5146.0 | 637.5 |
| 137 | 6985.7 | 5225.5 | 637.6 |
| 138 | 6636.5 | 5397.5 | 637.6 |
| 139 | 6865.6 | 5117.2 | 637.4 |
| 140 | 6956.3 | 5179.7 | 637.6 |
| 141 | 6999.3 | 5199.7 | 637.6 |
| 142 | 6885.6 | 5641.6 | 638.3 |
| 143 | 7078.6 | 5430.1 | 637.6 |
| 144 | 6996.0 | 5565.6 | 639.7 |
| 145 | 6797.4 | 5603.5 | 639.6 |
| 146 | 6783.8 | 5610.0 | 639.6 |
| 147 | 6777.3 | 5597.9 | 639.7 |
| 148 | 6785.2 | 5620.0 | 639.5 |
| 149 | 6833.6 | 5764.9 | 638.2 |
| 150 | 6452.9 | 5749.4 | 639.0 |
| 151 | 6763.8 | 5890.1 | 638.8 |
| 152 | 6606.8 | 5818.6 | 639.2 |
| 201 | 5674.8 | 4984.8 | 647.5 |
| 202 | 6059.9 | 5011.5 | 640.4 |
| 202A | 6077.4 | 5014.5 | 639.9 |
| 203 | 6029.0 | 5011.5 | 641.0 |

SOIL BORING LOCATION REPORT
AMERICAN CHEMICAL SERVICES, INC.
GRIFFITH, INDIANA

PAGE 3

| BORING | NORTH | EAST | ELEVATION |
|--------|--------|--------|-----------|
| 204 | 5964.5 | 5012.0 | 642.0 |
| 205 | 5913.8 | 5014.2 | 643.4 |
| 205A | 5930.6 | 4988.6 | 646.0 |
| 206 | 5856.2 | 5013.4 | 644.6 |
| 207 | 5801.1 | 4978.0 | 646.9 |
| 208 | 5763.9 | 4960.8 | 646.8 |
| 209 | 5715.5 | 4942.1 | 647.4 |
| 210 | 5690.0 | 4988.9 | 647.2 |
| 212 | 5758.7 | 5453.6 | 649.4 |
| 213 | 5637.8 | 5388.9 | 653.1 |
| 214 | 5946.4 | 5523.4 | 647.2 |
| 215 | 6126.2 | 5615.5 | 647.9 |
| 216 | 6325.7 | 5662.3 | 645.9 |
| 217 | 6444.1 | 5602.8 | 639.5 |
| 218 | 6517.4 | 5411.0 | 634.7 |
| 219 | 6606.9 | 5229.9 | 633.0 |
| 220 | 6496.9 | 5175.7 | 635.4 |
| 221 | 6353.9 | 5138.1 | 634.0 |
| 222 | 6223.4 | 5069.4 | 638.6 |
| 223 | 6729.8 | 5059.2 | 638.5 |
| 224 | 6197.5 | 5301.8 | 646.9 |
| 225 | 6208.5 | 5283.1 | 647.3 |
| 226 | 6192.7 | 5286.9 | 647.5 |
| 227 | 6212.0 | 5297.6 | 646.9 |

B1

SOIL BORING LOGS –
PROPOSED FINAL ALIGNMENT

This document has been developed for a specific project and is not to be used for any other purpose without approval of Montgomery Watson.

Project Name
Project Number
Drawing Number

Scale
North Arrow
Legend

Revisions
Issued/Revised
By
Date

Approved By
Reference
Consultants

Drawn By
Date

Checked By
Date

Reviewed By
Date

Approved By
Date

Drawn By
Date

Checked By
Date

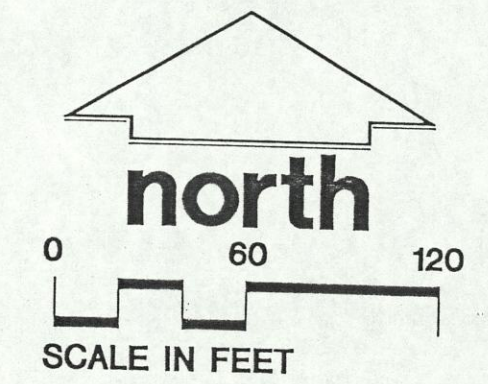


LEGEND

- PILOT TEST CELL
- APPROXIMATE LOCATION OF BARRIER WALL
- RAILROAD TRACK
- TOPOGRAPHIC CONTOUR
- FENCE LINE
- UNDERGROUND ELECTRIC LINE
- OVERHEAD POWER LINE
- WATER LINE
- GAS LINE
- TELEPHONE LINE
- SEWER LINE
- STORM DRAIN
- ABOVE GROUND PROCESS LINE

NOTES

1. BASE MAP DEVELOPED FROM AN AERIAL SURVEY MAP OF THE SITE, FLOWN ON MARCH 8, 1994 BY GEONEX CHICAGO AERIAL SURVEY, INC.
2. VERTICAL DATUM IS U.S.G.S. DATUM. CONTOUR INTERVAL IS 2 FEET.
3. FINAL BARRIER WALL LOCATION IS BASED ON RESULTS OF SOIL BORING PROGRAM.
4. SOIL BORINGS PERFORMED JANUARY 17, 1996 THROUGH FEBRUARY 12, 1996, BY ENVIRONMENTAL AND FOUNDATION DRILLING.
5. SOIL BORING ELEVATIONS AND LOCATIONS SURVEYED ON FEBRUARY 12, AND 16, 1996, BY AREA SURVEY.



BARRIER WALL ALIGNMENT AND UTILITIES LOCATION

BARRIER WALL ALIGNMENT INVESTIGATION
AMERICAN CHEMICAL SERVICE, INC.
NPL SITE
GRIFFITH, INDIANA

Printed
Sheet Number
1 of 1
Drawing Number
4077.0075
F1
MONTGOMERY
WATSON

FIGURE 7

B1

SOIL BORING LOGS –
PROPOSED FINAL ALIGNMENT

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB109**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.0**
Northing: **7027.3**
Easting: **5307.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown Fine SAND (SP), Trace Gravel | | | |
| 1 | 20 | M/W | 5 | | Orange Brown, Fine SAND (SP), Grades into Olive Gray Silt from 2 to 2.2 ft, Then into a Olive Gray Fine Sand, Sweet Musty Odor Present | -- | 4.0 | |
| 2 | 20 | M | 8 | | Dark Gray to Brown Stained Fine SAND and SILT (SM), Grades into Dark Gray Stained Fine Sand at 4.5 ft | -- | 25.0 | |
| 3 | 20 | W | 9 | 5 | Gray Stained Fine SAND (SP), Trace Organics (Roots), Musty odor Present | -- | 5.0 | |
| 4 | 16 | W | 10 | | Brown Fine SAND (SP), Trace Silt, Grades into Gray Stained Fine Sand, Some Black Stained Layers, Musty Odor Present | -- | 55.0 | |
| 5 | 16 | W | 12 | 10 | Gray Stained Fine SAND (SP) to 10.5 ft, Grades into Gray Brown, Fine to Coarse SAND, Musty Odor Present | -- | 75.0 | |
| 6 | 18 | W | 13 | | Gray Fine SAND (SP), Trace Silt and Clay, Fine to Coarse Sand at 12.5 to 13.0 ft | -- | 87.0 | |
| 7 | 16 | W | 13 | 15 | Gray Fine to Coarse SAND and GRAVEL (SP/GP), Little Black Staining at 14.5 to 15.0 ft, Musty Odor Present | -- | 49.0 | Field analysis for VOCs and PCBs |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ∇ ft. Upon Completion of Drilling ∇ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start **1/19/96** End **1/19/96**
Driller **E & F** Chief **GH** Rig **CME 55**
Logger **DAP** Editor **PMS**
Drill Method **4 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB109**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.0**
 Northing: **7027.3**
 Easting: **5307.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 16 | W | 16 | | Gray, Fine to Coarse SAND and GRAVEL (SP/GP) to 16.0 ft, Grades into Gray Brown Fine Sand, Trace Silt and Clay, Musty Odor Present | -- | 14.0 | |
| 9 | 18 | W/M | | | Gray, Fine to Coarse SAND (SP) from 17 to 17.5 ft, then Grades into Gray Brown Fine SAND, Musty Odor Present | -- | 64.0 | |
| | | | | | Hard, Gray Silty CLAY (CL-ML) | > 4.0 | | |
| 10 | 18 | M | | | | | | |
| | | | | 20 | Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand, Fine Gravel | | | |
| | | | | | End of Boring at 21.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB113**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.8**
 Northing: **7065.9**
 Easting: **5422.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|------|---------------|---------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------|----------------------------------|
| No. | TYPE | Rec. (in.) | Mois- ture | N Value | | Depth (ft.) | qu (qs) (tsf) | PID (ppm) |
| | | | | | | | | |
| 1 | | 20 | M | 6 | Brown Fine SAND and Fine to Coarse GRAVEL (GP) | -- | 0.0 | |
| 2 | | 20 | M | 6 | Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine Gravel, Thin Gray Clayey Zone at 2.0 ft | -- | 134.0 | |
| 3 | | 20 | W | 5 | Black Fine SAND (SP), Some Silt, Organics and Roots Present, Wood Chips from 2.6 to 2.7 ft, Sulfur and Solvent Odors Present | -- | 1285.0 | |
| 4 | | 20 | W | 11 | Dark Gray to Black, Fine SAND (SP), Little Medium to Coarse Sand, Trace Fine Gravel, Solvent Odor Present | -- | 3875.0 | Field analysis for VOCs and PCBs |
| 5 | | 20 | W | 12 | Black/Gray, Fine to Coarse SAND (SP), Strong Solvent Odor and Petroleum Sheen Present, Black Staining from 7.8 to 8.5 ft; Black Stained, Fine to Coarse Sand and Gravel from 8.1 to 9.0 ft | -- | 6529.0 | Field analysis for VOCs and PCBs |
| 6 | | 20 | W | 13 | Black and Gray-Brown, Petroleum Sheen Stained, Fine to Coarse SAND (SP), Fine Gravel, Solvent Odor Present | -- | 13.0 | |
| 7 | | 20 | W | 10 | Gray Stained, Fine to Coarse SAND and Fine Gravel (SP) to 12.5 ft, Grades into Gray-Brown, Fine Sand, Solvent Odor Present | -- | 0.0 | |
| | | | | | Gray-Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine Gravel, Slight Musty Solvent Odor Present | | | |
| | | | | | | | | |

| WATER LEVEL OBSERVATIONS | | | | GENERAL NOTES | |
|--------------------------|-----|-----------------------------|-----|---------------|---------------------------|
| While Drilling | ft. | Upon Completion of Drilling | ft. | Start | 1/23/96 End 1/23/96 |
| Time After Drilling | | | | Driller | E & F Chief GH Rig CME 55 |
| Depth to Water | | | | Logger | DAP Editor PMS |
| Depth to Cave in | | | | Drill Method | 4 1/4" I.D. HSA |

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077.Gmt40772 (0).DMS200

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB113**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.8**
 Northing: **7065.9**
 Easting: **5422.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _a) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 15 | | Gray-Brown Fine SAND (SP), Trace to Little, Medium to Coarse Sand, Fine Gravel, Slight Musty Odor | -- | 67.0 | |
| 9 | 22 | W/M | 17 | | Gray/Brown, Fine to Coarse SAND and GRAVEL (GP) | | 1283.0 | PID reading in sand |
| | | | | | Hard, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | > 4.5 | 2812.0 | PID reading in clay |
| 10 | | | | | | -- | | |
| | | | | 20 | End of Boring at 20.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB114**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.1**
Northing: **7072.6**
Easting: **5374.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown SAND and GRAVEL (GP) | | | |
| 1 | 14 | M | 6 | | Dark Brown to Black Stained, Fine SAND and SILT (SM), Organics (Roots) and Musty Solvent Odor Present | -- | 498.0 | |
| 2 | 22 | M/W | 6 | | Dark Gray to Black Stained, Fine SAND (SP), Grades into Olive Gray Brown Fine SAND, Trace to Little Silt at 5 ft, Musty Solvent Odor Present | -- | 904.0 | Field analysis for VOCs and PCBs |
| 3 | 12 | W | 8 | | Gray Brown Fine SAND (SP), Trace Silt, Musty Solvent Odor Present | -- | 66.0 | |
| 4 | 14 | W | 6 | | Olive Gray Brown Fine SAND (SP), Trace Medium to Coarse Sand and Silt, Musty Solvent Odor Present | -- | 111.0 | Field analysis for VOCs and PCBs |
| 5 | 16 | W | 9 | | Gray, Fine to Coarse SAND (SP), Trace Silt, Musty Odor Present | -- | 318.0 | |
| 6 | 16 | W | 7 | | Gray, Fine to Coarse SAND (SP), Trace Silt, Musty Odor Present | -- | 0.0 | |
| <p>WATER LEVEL OBSERVATIONS</p> <p>While Drilling <input type="checkbox"/> ft. Upon Completion of Drilling <input checked="" type="checkbox"/> ft.</p> <p>Time After Drilling _____</p> <p>Depth to Water _____</p> <p>Depth to Cave in _____</p> <p>The stratification lines represent the approximate boundary between soil types and the transition may be gradual.</p> | | | | | <p>GENERAL NOTES</p> <p>Start 1/23/96 End 1/23/96</p> <p>Driller E & F Chief GH Rig CME 55</p> <p>Logger DAP Editor PMS</p> <p>Drill Method 2 1/4" I.D. HSA</p> | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB114**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.1**
Northing: **7072.6**
Easting: **5374.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 12 | | Gray Fine SAND (SP), Trace Medium to Coarse Sand 1 in. Clay and Silt Lenses at 17 and 17.5 ft | -- | 34.0 | |
| 8 | 22 | W/M | 7 | | Gray Fine SAND (SP), Musty Odor Present to 19.3 ft | -- | 3282.0 | |
| | | | | 20 | Hard, Gray Silty CLAY (CL-ML) at 19.3 ft, Trace Fine to Coarse Sand | > 4.5 | | |
| 9 | 6 | M | | | Hard, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | > 4.5 | | Blow-in sand on top of clay in last spoon |
| | | | | | End of Boring at 22.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB115**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.3**
 Northing: **7071.4**
 Easting: **5328.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown Sand and Gravel (FILL) | | | |
| 1 | 14 | M | 6 | | Brown Fine SAND (SP), Grades into Dark Gray to Black Fine SAND (Stained), Trace Organics (Roots), Trace Small Pieces of Wood, Sweet Musty Odor Present | -- | 66.0 | |
| 2 | 22 | M | 8 | | Dark Gray Brown Fine SAND (SP), Trace Roots, Sweet Musty Odor Present | -- | 156.0 | Field analysis for VOCs and PCBs |
| 3 | 18 | W | 7 | | Dark Gray to Black Stained, Fine to Coarse SAND (SP), Trace Medium to Coarse Sand, Sweet Musty Odor Present | -- | 83.0 | Field analysis for PCBs |
| 4 | 14 | W | 7 | | Grades into Brown, Fine to Coarse SAND (SP) at 9.5 ft, Sweet Musty Odor Present | -- | 34.0 | |
| 5 | 14 | W | 6 | | Gray, Fine SAND (SP), Trace Medium to Coarse Sand, Small Pieces of Wood from 12 to 12.5 ft, Sweet Musty Odor Present | -- | 7.0 | |
| 6 | 12 | W | 14 | | Grades into Gray Brown Fine to Coarse SAND (SP) at 14.5 ft, Musty Odor Present | -- | 28.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **1/24/96** End **1/24/96**
 Driller **E & F Chief GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB115**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.3**
Northing: **7071.4**
Easting: **5328.2**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|------------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | q_u (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | | | | |
| 7 | 16 | W | 9 | | Gray Brown, Fine to Coarse SAND (SP), Sweet Musty Odor Present | -- | 12.0 | |
| 8 | 18 | W/M | 12 | | | -- | 9.0 | |
| | | | | 20 | Hard, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Fine Gravel | > 4.5 | | |
| 9 | 14 | M | 13 | | Hard, Gray Silty CLAY (CL-ML) | > 4.5 | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB116**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.5**
Northing: **7054.4**
Easting: **5472.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Some Brown Sand and Clay (FILL) | | | |
| 1 | 20 | M | 6 | | Dark Brown and Black Stained, Fine to Coarse SAND (SP), Solvent Odor Present | -- | 459.0 | |
| 2 | 20 | M/W | 6 | | Black Stained, Fine SAND (SP), Trace Silt and Organics (Roots) | -- | 7.0 | Field analysis for VOCs and PCBs |
| 3 | 16 | W | 6 | | Dark Gray to Black Stained, Fine SAND (SP), Grades to Gray-Brown at 7.0 ft, Solvent Odor Present | -- | 38.0 | Field analysis for VOCs and PCBs |
| 4 | 12 | W | 8 | | Dark Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Black Staining at 9.8 to 10.0 ft, Solvent Odor Present | -- | 28.0 | |
| 5 | 18 | W | 10 | | Grades into Gray/Brown, Fine to Coarse SAND (SP), Little fine Gravel at 11.5 ft, Solvent Odor Present | -- | 0.0 | |
| 6 | 12 | W | 7 | | 2 in. Thick Dark Gray, Fine to Coarse SAND and Fine GRAVEL (SP) Layer at 14 ft | -- | 1.0 | Blow in |
| WATER LEVEL OBSERVATIONS While Drilling <input type="checkbox"/> ft. Upon Completion of Drilling <input type="checkbox"/> ft. Time After Drilling _____ Depth to Water _____ Depth to Cave in _____ | | | | | GENERAL NOTES Start 1/24/96 End 1/24/96 Driller E & F Chief GH Rig CME 55 Logger DAP Editor PMS Drill Method 2 1/4" I.D. HSA | | | |

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077.Gmt/4077.D ID: CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB116**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.5**
Northing: **7054.4**
Easting: **5472.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 10 | | Gray/Brown Fine SAND (SP), Little to Some, Medium to Coarse Sand, Thin Clay Seam from 18.5 to 18.7 ft, Slight Musty Odor Present | -- | 17.0 | |
| 8 | 22 | M | 11 | | Hard, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Fine Gravel | >4.5 | 17.0 | PID from sand |
| | | | | 20 | | | 20.0 | PID from clay |
| 9 | | | | | Sand Blow-in; Advanced Sampler Again | >4.5 | | |
| | | | | | Hard, Gray, Silty CLAY (CL-ML) | | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB123**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.1**
Northing: **7001.1**
Easting: **5274.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown Fine SAND and GRAVEL (SP/GP) | | | |
| 1 | 16 | M/W | 8 | | Brown Fine SAND (SP), Very Slight Solvent Odor Present | -- | 7.0 | |
| 2 | 18 | W | 6 | | Grades into Gray Brown Fine SAND (SP), Some Black Silty Fine Sand, Black Stained from 5 to 5.5 ft, Musty Propane Like Odor | -- | 366.0 | Field analysis for VOCs and PCBS |
| 3 | 20 | W | 4 | | Black Stained Fine SAND (SP), Sulfur Swampy Odor (Rotten Egg Odor) | -- | 58.0 | Field analysis for PCBs |
| 4 | 10 | W | 3 | | Dark Gray Fine SAND (SP), Slight Sulfur Swampy Odor | -- | 37.0 | |
| 5 | 10 | W | 9 | | Grades into Gray, Fine to Coarse SAND (SP) at 11 ft, Slight Sulfur Odor Present | -- | 73.0 | |
| 6 | 14 | W | 11 | | Gray Fine SAND (SP), Grades into Gray, Fine to Coarse Sand from 15 to 15.5 ft | -- | 0.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/26/96 End 1/26/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077-Gen-40770-10, CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB123**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.1**
Northing: **7001.1**
Easting: **5274.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 9 | | | -- | 0.0 | |
| 8 | 20 | W/M | 10 | | Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Musty Odor Present | -- > 4.5 | 5.0 | |
| | | | | 20 | Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand | | | |
| 9 | 8 | M | 13 | | Hard Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | > 4.5 | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB124**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.6**
 Northing: **7023.1**
 Easting: **5521.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Brown Fine Sand (FILL) | | | |
| 1 | 14 | M | 6 | | Brown Fine SAND (SP), Grades into Dark Brown to Black Fine Sand, Some Silt, Trace Organics, Small Gravel, Slight Solvent Odor Present | -- | 132.0 | |
| 2 | 18 | M/W | 6 | | Olive Gray Brown Fine SAND (SP), Slight Rusty Odor Present | -- | 27.0 | |
| 3 | 18 | W | 8 | | Olive Gray Brown Fine SAND (SP), Black Stained from 7 to 7.3 ft, Gray Stained from 7.3 to 7.6 ft, Brown Fine Sand at 7.6 ft, Musty Odor Present | -- | 247.0 | Field analysis for PCBs |
| 4 | 7 | W | 6 | | Brown Fine SAND (SP), Grades into Dark Gray, Fine to Coarse SAND and GRAVEL at 10 ft, Musty Oily Odor Present | -- | 198.0 | Poor recovery, field analysis for PCBs |
| 5 | 20 | W | 9 | | Gray, Fine to Coarse SAND and GRAVEL (GP), Grades into Brown, Fine to Coarse SAND and GRAVEL at 12 ft, Sweet Musty Odor present | -- | 512.0 | Field analysis for VOCs |
| 6 | 14 | W | 9 | | Gray Brown, Fine to Coarse SAND (SP), Trace Medium to Coarse Sand, Sweet Musty Propane Like Odor Present | -- | 65.0 | |

WATER LEVEL OBSERVATIONS
GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start 1/26/96 End 1/26/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J:\077\Gmt\40773 ID. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB124**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.6**
 Northing: **7023.1**
 Easting: **5521.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 13 | | Gray, Fine to Coarse SAND (SP), Little Fine Gravel, Grades into Gray Brown Fine Sand at 17 ft, Sweet Musty Propane-Like Odor Present | -- | 50.0 | |
| 8 | 22 | M | | | Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand | >4.5 | | |
| | | | | 20 | | >4.5 | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB126**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.3**
 Northing: **6907.2**
 Easting: **5615.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Brown Fine Sand (FILL) | | | |
| 1 | 16 | M | 8 | | Gray Brown, Fine to Coarse SAND and Fine GRAVEL (SP/GP), Grades into Brown Fine Sand, Slight Solvent Odor Present | -- | 475.0 | |
| 2 | 16 | M | 8 | | Olive Gray Brown Fine SAND (SP), Grades into Fine to Coarse Sand, Gravel at 5.0 to 5.5 ft, Solvent Odor Present | -- | 604.0 | Field analysis for VOCs |
| 3 | 14 | M/W | 5 | | Olive Gray to Black Stained, Fine to Coarse SAND (SP), Little Fine Gravel, Solvent Odor Present | -- | 394.0 | |
| 4 | 0 | W | 1/24" | | No Recovery | -- | | |
| 5 | 12 | W | 7 | | Brown SAND and GRAVEL (SP/GP), Oily Stained Zone at 11.5 ft, Grades into Olive Brown, Fine to Coarse Sand and Gravel to 12.5 ft then into Gray Fine Sand (Solvent-Oily Odor Throughout Sample Interval) | -- | 662.0 | Field analysis for VOCs and PCBs |
| 6 | 14 | W | 6 | | Dark Brown Fine SAND (SP), Sweet Musty Propane-Like Odor Present | -- | 132.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **1/29/96** End **1/29/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB126**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.3**
Northing: **6907.2**
Easting: **5615.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 22 | W | 10 | | Gray Brown to Gray, Fine to Coarse SAND and Fine GRAVEL (SP/GP), Grades into Gray Brown Fine Sand at 18.0 ft, Sweet Musty Odor Present | -- | 627.0 | |
| 8 | 22 | W/M | 11 | | Gray, Fine to Coarse SAND (SP/GP), Gravel, Little Silt and Clay, Musty Odor | 4.0 >4.5 | 17.0 | |
| 9 | 16 | M | 18 | | Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand at 19.5 ft Hard Silty CLAY (CL-ML) | >4.5 | | |
| | | | | | End of Boring at 22.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB127**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.3**
Northing: **6960.9**
Easting: **5599.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-----------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 24 | M | 5 | | Black to Dark Gray Brown, Fine SAND (SP), Sweet Musty Odor (Propane-Like) | -- | 271.0 | |
| | | | | | No Recovery, Brown Oily Sheen on Sampler | | | |
| 2 | 24 | M | 1/24" | | | -- | 494.0 | |
| | | | | 5 | No Recovery | | | |
| 3 | 24 | M/W | 24 | | | -- | 995.0 | Field analysis for PCBs |
| | | | | | | | | |
| 4 | | W | 2 | | Brown Oily Stained, Fine to Coarse SAND (SP), Some Medium to Coarse Sand and Fine Gravel, Sheen, Varnish Odor Present | -- | 1086.0 | Sheen Field analysis for VOCs and PCBs |
| | | | | 10 | | | | |
| 5 | | W | 5 | | Brown, Fine to Coarse SAND (SP), Some Black to Dark Gray Staining, Trace Fine Gravel, Solvent Odor, Sheen | -- | 1305.0 | Sheen |
| | | | | | | | | |
| 6 | | W | 7 | | Brown, Fine to Coarse SAND (SP), Grades into Brown Fine Sand, Solvent Odor | -- | 1051.0 | Sheen |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/29/96 End 1/29/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J:\0273\Gmt\40770.10. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB127**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.3**
 Northing: **6960.9**
 Easting: **5599.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | | W | 10 | | Brown Fine SAND (SP), Solvent Odor Present | -- | 994.0 | |
| 8 | | W/M | 13 | | Very Stiff, Gray Silty CLAY (CL-ML) | -- | 3.0 | |
| 9 | | | | | | -- | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB127**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.3**
Northing: **6960.9**
Easting: **5599.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-----------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 24 | M | 5 | | Black to Dark Gray Brown, Fine SAND (SP), Sweet Musty Odor (Propane-Like) | -- | 271.0 | |
| | | | | | No Recovery, Brown Oily Sheen on Sampler | | | |
| 2 | 24 | M | 1/24" | | | -- | 494.0 | |
| | | | | 5 | No Recovery | | | |
| 3 | 24 | M/W | 24 | | | -- | 995.0 | Field analysis for PCBs |
| | | | | | | | | |
| 4 | | W | 2 | | Brown Oily Stained, Fine to Coarse SAND (SP), Some Medium to Coarse Sand and Fine Gravel, Sheen, Varnish Odor Present | -- | 1086.0 | Sheen Field analysis for VOCs and PCBs |
| | | | | 10 | | | | |
| 5 | | W | 5 | | Brown, Fine to Coarse SAND (SP), Some Black to Dark Gray Staining, Trace Fine Gravel, Solvent Odor, Sheen | -- | 1305.0 | Sheen |
| | | | | | | | | |
| 6 | | W | 7 | | Brown, Fine to Coarse SAND (SP), Grades into Brown Fine Sand, Solvent Odor | -- | 1051.0 | Sheen |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ft. Upon Completion of Drilling ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start **1/29/96** End **1/29/96**
Driller **E & F Chief GH** Rig **CME 55**
Logger **DAP Editor PMS**
Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB127**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.3**
 Northing: **6960.9**
 Easting: **5599.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | | W | 10 | | Brown Fine SAND (SP), Solvent Odor Present | -- | 994.0 | |
| 8 | | W/M | 13 | | Very Stiff, Gray Silty CLAY (CL-ML) | -- | 3.0 | |
| 9 | | | | | | -- | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB131**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **636.7**
Northing: **6826.5**
Easting: **5088.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 4 | M | 4 | | Dark Brown to Black Fine SAND (SP), Piece of Slag in Spoon, Poor Recovery | -- | 6.0 | |
| 2 | 18 | M | 10 | | Dark Brown to Dark Gray Brown Fine SAND (SP), Little Medium to Coarse Sand and Fine Gravel, Trace Roots and Silt | -- | 9.0 | |
| 3 | 16 | W | 9 | | Black Stained Fine SAND (SP), Grades to Brown to Gray Brown Fine Sand, Slight Musty Odor | -- | 3.0 | Field analysis for PCBs |
| 4 | 14 | W | 6 | | Dark Gray to Gray Fine SAND (SP), Trace Silt, Trace Roots (Organic Matter), Slight Sulfur Odor Present | -- | 11.0 | |
| 5 | 18 | W | 7 | | Dark Gray Fine SAND (SP), Silty Clay Seam from 12.0 to 12.5 ft, Grades into Fine to Coarse Sand and Gravel, Silty and Clay at 12.5 ft, Slight Sweet Musty Odor Present | -- | 5.0 | |
| 6 | 14 | W | 11 | | Gray Brown Fine SAND (SP), Trace Fine to Coarse Gravel, Sweet Propane-Like Odor Present | -- | 140.0 | Field analysis for VOCs |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/31/96 End 1/31/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077.Gmt.4077.0 ID. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB131**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **636.7**
Northing: **6826.5**
Easting: **5088.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 8 | | Gray Fine SAND, Grades into Gray, Fine to Coarse Sand to 17.0 ft, Sweet Musty Odor, Clay in Tip of Spoon at 18.0 ft | -- | 98.0 | |
| 8 | 22 | W | 10 | | Very Stiff, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand | 3.0 | | |
| | | | | 20 | | 3.5 | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB136**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.5**
Northing: **6903.5**
Easting: **5146.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PI (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Fine Sand (FILL) | | | |
| 1 | 20 | M | 12 | | Black Fine SAND and SILT (FILL), Small Pieces of Wood, Grades into Olive Gray Brown Fine SAND at 2.5 ft, Musty Odor Present | -- | 0.0 | |
| 2 | 20 | M/W | 7 | | Gray Brown Fine SAND (SP), Some Black Staining, Some Black Silt at 4 to 4.5 ft, Musty Odor Present | -- | 0.0 | |
| 3 | 22 | W | 6 | 5 | Dark Gray Brown to Black Stained, Fine SAND (SP), Slight Musty Odor Present | -- | 10.0 | Field analysis for PCBs |
| 4 | 20 | W | 6 | | Gray Brown Fine SAND (SP), Trace Black Staining, Slight Musty Odor Present | -- | 11.0 | |
| 5 | 20 | W | 7 | 10 | Dark Gray, Fine to Coarse SAND (SP), Little Silt and Clay, Silt and Clay Lense from 11 to 11.5 ft, Dark Gray Fine to Coarse Sand and Gravel, Slight Musty odor Present | -- | 4.0 | |
| 6 | 20 | W | 14 | | Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Some Silt, Slight Musty Odor Present | -- | 22.0 | |
| 7 | 22 | W | 13 | | Gray, Fine to Coarse SAND (SP), Grades into Gray Brown Fine Sand at 14.0 ft | -- | 15.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 2/1/96 End 2/5/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB136**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.5**
 Northing: **6903.5**
 Easting: **5146.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 22 | W | 13 | | Gray Brown, Fine to Coarse SAND (SP) to 16.5 ft, Then into Gray Brown Fine Sand, Sweet Propane Like Odor Present | — | 109.0 | |
| 9 | 22 | W/M | 12 | | Gray Brown, Fine to Coarse SAND (SP), Solvent Like Odor Present | > 4.5 | 1012.0 | Field analysis for VOCs |
| 10 | 18 | M | 14 | | Very Stiff to Hard, Gray Silty CLAY (CL-ML) Hard, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | > 4.5 | 4.0 | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB139**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.4**
 Northing: **6865.6**
 Easting: **5117.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag and Gravel (FILL) | | | |
| 1 | 6 | M | 26 | | Gray Brown Fine SAND (SP), Over Black Silt and Fine Sand, Trace Fine to Coarse Gravel, No Odors Present | -- | 0.0 | |
| 2 | 18 | M | 10 | | Light Brown Fine SAND (SP), Trace Fine Gravel, Very Slight Musty Odor Present | -- | 104.0 | |
| 3 | 20 | W | 7 | | Dark Gray to Black Stained, Fine SAND (SP), Musty Sulfur Odor Present | -- | 113.0 | Field analysis for PCBs |
| 4 | 20 | W | 5 | | Black Fine SAND (SP), Musty Sulfur Odor Present | -- | 198.0 | |
| 5 | 16 | W | 6 | | Dark Gray Fine SAND (SP), Grades into Fine to Coarse SAND at 12.0 ft, Musty Sulfur Odor Present | -- | 101.0 | |
| 6 | 16 | W | 7 | | Gray, Fine to Coarse SAND (SP), Grades into Gray Brown Fine Sand, Musty Propane-Like Odor Present | -- | 30.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **2/5/96** End **2/5/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J:\0775\Gmt\40775.D, CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB139**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.4**
 Northing: **6865.6**
 Easting: **5117.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 8 | | Gray Brown Fine SAND (SP), Musty Propane Like Odor Present | -- | 434.0 | Field analysis for VOCs |
| 8 | 24 | M | 13 | | Very Stiff to Hard, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel at 18.5 ft | -- | | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB140**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.6**
 Northing: **6956.3**
 Easting: **5179.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag and Gravel (FILL) | | | |
| 1 | 12 | M | 8 | | Gray Brown Fine SAND (SP), Grades into Dark Brown Fine Sand at 2.5 ft | -- | 0.0 | |
| 2 | 20 | M | 5 | | Dark Brown to Black Fine SAND (SP) and Silt, Trace Organics, Grades into Brown Fine Sand, Slight Musty Odor Present | -- | 0.0 | |
| 3 | 18 | W | 7 | | Dark Gray Fine SAND (SP), Musty Odor Present, Trace Roots | -- | 10.0 | Field analysis for VOCs |
| 4 | 16 | W | 4 | | Dark Brown to Black Stained (Creosote Like Odor), Fine SAND (SP) to 9.5 ft, Grades into Light Gray Brown, Fine to Coarse Sand, Musty Odor Present | -- | 5.0 | Field analysis for PCBs |
| 5 | 16 | W | 6 | | Gray Brown Fine SAND (SP), Grades into Gray Fine to Coarse Sand and Fine Gravel at 12.5 ft, Sweet Musty Odor Present | -- | 9.0 | |
| 6 | 16 | W | 6 | | Gray Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine Gravel, Sweet Musty Odor Present | -- | 0.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **2/6/96** End **2/6/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

JH017/Gen/40770 ID: CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB140**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.6**
 Northing: **6956.3**
 Easting: **5179.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 10 | | Gray Brown Fine SAND (SP), Little to Some, Medium to Coarse Sand, Trace Fine Gravel, Sweet Musty Odor Present | -- | 0.0 | |
| 8 | 22 | W | 9 | | Very Stiff, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | -- | 0.0 | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB141**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.6**
Northing: **6999.3**
Easting: **5199.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|------|---------------|---------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | TYPE | Rec. (in.) | Mois- ture | N Value | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag and Gravel (FILL) | | | |
| 1 | | 16 | M | 7 | Brown Fine SAND (SP), Grades into Dark Brown Fine Sand, Solvent Odor at 2.5 to 3.0 ft Zone | -- | 67.0 | |
| 2 | | 18 | M | 6 | Gray Fine SAND (SP), Sulfur Odor Present, Little Black Staining at 5.2 to 5.5 ft | -- | 2348.0 | Field analysis for VOCs |
| 3 | | 18 | W | 6 | Black Stained Fine SAND (SP) to 6.5 ft, Grades into Dark Gray Fine Sand to Olive Gray Brown Fine Sand at 7.5 ft, Musty Odor Present | -- | 21.0 | Field analysis for PCBs |
| 4 | | 14 | W | 6 | Gray Fine SAND (SP), Little Brown to Black Staining from 9.5 to 10.0 ft, Musty Odor Present | -- | 164.0 | Field analysis for PCBs |
| 5 | | 12 | W | 4 | Gray Fine SAND (SP), Trace Medium to Coarse Sand and Fine Gravel, Musty Odor Present | -- | 22.0 | |
| 6 | | 16 | W | 8 | Gray, Fine to Coarse SAND (SP) to 14.5 ft, Grades into Gray Brown Fine Sand, Thin Silt Lense at 14.7 to 14.8 ft, Sweet Propane-Like Odor Present | -- | 7.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ft. Upon Completion of Drilling ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 2/6/96 End 2/6/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077.Gat.4077.00.02.CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB141**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.6**
Northing: **6999.3**
Easting: **5199.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 12 | | Gray Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine Gravel, Sweet Propane Like Odor Present | -- | 6.0 | |
| 8 | 22 | M | 11 | | Very Stiff to Hard Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | 4.0- >4.5 | | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB142**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.3**
 Northing: **6885.6**
 Easting: **5641.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|------|---------------|---------------|------------|-------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | TYPE | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag and Gravel (FILL) | | | |
| 1 | | 4 | M | 10 | Dark Brown Fine SAND (SP), Some Light Brown Fine Sand | -- | 0.0 | |
| 2 | | 12 | M | 4 | Gray and Brown, Fine to Coarse SAND (SP), Solvent Odor Present | -- | 1145.0 | |
| 3 | | 16 | W | 4 | Olive Brown, Fine to Coarse SAND (SP) to 6.5 ft, Then into Brown Fine Sand, Sheen and Solvent Odor Present | -- | 1534.0 | Field analysis for VOCs and PCBs |
| 4 | | 14 | W | 6 | Olive Gray Brown, Fine to Coarse SAND (SP), Solvent Odor Present | -- | 1435.0 | Field analysis for PCBs |
| 5 | | 12 | W | 7 | Olive Brown, Fine to Coarse SAND (SP) to 11.5 ft, Then into Gray Brown Fine Sand, Sweet Propane Like Odor Present | -- | 361.0 | |
| 6 | | 12 | W | 8 | Gray Brown Fine to Coarse SAND (SP), Grades into Gray Brown Fine Sand at 14.0 ft, Sweet Propane Like Odor Present | -- | 505.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 2/6/96 End 2/6/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

JA077/Gra4077D 12, 1/1/99

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB142**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.3**
 Northing: **6885.6**
 Easting: **5641.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 10 | | Gray Brown Fine SAND (SP), Trace Medium to Coarse Sand, Fine Gravel, Sweet Propane Like Odor Present, Some Fine to Coarse Sand in Tip of Spoon | — | 240.0 | |
| 8 | 18 | W/M | 11 | | Gray Clayey SILT (CL-ML), Grades to Very Stiff, Silty Clay, Trace Fine to Coarse Sand and Gravel | 2.5-3.5 | 4.0 | |
| 9 | 10 | M | 8 | | Stiff, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | 2.5-3.0 | | |
| | | | | | End of Boring at 22.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB144**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **639.7**
 Northing: **6996.0**
 Easting: **5565.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag Gravel and Fine Sand (FILL) | | | |
| 1 | | M | | | Split Spoon Refusal, Drilled to 3.5 ft, Soil Cuttings were Brown SAND (SP) at 1.0 ft, Green/Gray Sand at 2.0 ft, Black Sand at 3.0 ft | -- | 0.0 | |
| 2 | 16 | M | 14 | | Crushed Grayish Green Gravel to 3.8 ft, Then into Black Fine SAND (SP), Musty Odor Present | -- | 1708.0 | |
| 3 | 18 | W | 8 | | Dark Olive Gray/Brown Fine SAND (SP), Swampy, Musty Odor Present | -- | 333.0 | |
| 4 | 16 | W | 7 | | Olive Gray Brown Fine SAND (SP), Grades into Black Brown, Oily Stained, Fine to Coarse Sand at 9.5 to 9.8 ft and from 10.2 to 10.5 ft, Solvent Oily Odor Present | -- | 1867.0 | Field analysis for VOCs and PCBs |
| 5 | 18 | W | 8 | | Olive Gray Brown Fine SAND (SP), Grades into Black/Brown Oil Stained, Fine to Coarse Sand from 12.2 to 13.0 ft, Sheen Present | -- | 1860.0 | Field analysis for PCBs |
| 6 | 16 | W | 8 | | Dark Gray, Fine to Coarse SAND (SP), Black Stained Zone from 14.0 to 14.3 ft and 14.8 to 15.0 ft, Musty Odor Present | -- | 324.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **2/6/96** End **2/6/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J4077.Gint40773 ID. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB144**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **639.7**
Northing: **6996.0**
Easting: **5565.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 13 | | Dark Gray Fine to Coarse SAND (SP), Grades into Gray Brown Fine Sand at 17.0 ft, Musty Sweet Propane Like Odor Present | -- | 181.0 | |
| 8 | 20 | W/M | 8 | | Dark Gray Brown, Fine to Coarse SAND and GRAVEL (SP) | | 535.0 | |
| | | | | 20 | Hard Gray Brown Silty CLAY (CL-ML), Trace Fine to Coarse Sand at 19.7 ft | 4.5 | | |
| 9 | 18 | M | 8 | | Hard, Gray Brown Silty CLAY (CL-ML) | >4.5 | | |
| | | | | 25 | End of Boring at 22.5 ft | | | |
| | | | | 30 | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB149**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.2**
 Northing: **6833.6**
 Easting: **5764.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 891-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag, Gravel (FILL) | | | |
| 1 | 12 | M | 6 | | Dark Brown, Fine SAND (SP), Grades into Gray/Black Fine Sand, Musty Solvent Odor Present | -- | 216.0 | |
| | | | | | Dark Gray to Gray Fine SAND (SP), Little Silt, Musty Solvent Odor Present | | | |
| 2 | 14 | M | 6 | | | -- | 145.0 | |
| | | | | | Dark Gray to Gray Brown Fine SAND (SP), Sweet Odor, Little Black Staining from 6.5 to 6.8 ft | | | |
| 3 | 16 | W | 6 | | Grayish Green/Brown, Fine to Coarse SAND and Fine GRAVEL (SP), Musty Odor Present | -- | 313.0 | Field analysis for PCBs |
| | | | | | | | | |
| 4 | 16 | W | 7 | | Dark Olive Brown Fine to Coarse SAND (SP), Fine Gravel, Musty Odor | -- | 465.0 | Field analysis for VOCs and PCBs |
| | | | | | | | | |
| 5 | 20 | W | 11 | | Gray, Olive Brown Fine SAND (SP), Musty Sulfur Odor Present | -- | 218.0 | |
| | | | | | | | | |
| 6 | 20 | W | 11 | | Black Stained Fine SAND (SP) at 16.8 ft, Musty Sulfur Like Odor Present | -- | 75.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 2/12/96 End 2/12/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 4 1/4" I.D. HSA

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB149**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.2**
 Northing: **6833.6**
 Easting: **5764.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | | W | 14 | | | -- | 0.0 | |
| 8 | 20 | W/M | 10 | | Dark Gray, Fine to Coarse SAND (SP) to 19.5 ft, Musty Odor Present | -- | 11.0 | |
| | | | | 20 | Stiff to Very Stiff, Gray, Clayey SILT to Silty CLAY (CL-ML) | 3.0-4.5 | | |
| 9 | 20 | M | 11 | | Stiff, Gray Clayey SILT (CL-ML) | 2.5 | 0.0 | |
| | | | | | End of Boring at 23.0 ft | | | |
| | | | | 25 | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB150**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **639.0**
Northing: **6452.9**
Easting: **5749.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown Sand, Gray Slag, Gravel (FILL) | | | |
| 1 | 4 | M | N/A | | Brown, Fine to Coarse SAND and GRAVEL (FILL), Split Spoon Refusal | -- | 0.0 | |
| 2 | 16 | M | 6 | | Yellow Brown, Fine to Coarse SAND and GRAVEL (FILL), Some Olive Gray Staining from 4.5 to 5.5 ft | -- | 3.0 | |
| 3 | 16 | M/W | 5 | | Olive Gray to Dark Silver-Gray Stained, Fine to Coarse SAND and GRAVEL (FILL), Creosote Like Odor | -- | 1648.0 | Field analysis for VOCs and PCBs |
| 4 | 10 | W | 5 | | Olive Gray to Dark Silver-Gray Stained, Fine to Coarse SAND and GRAVEL (FILL), Creosote Like Odor | -- | 79.0 | |
| 5 | 10 | W | 6 | | Dark Gray, Fine to Coarse SAND (SP) to 12.0 ft, Grades into Gray Brown Fine Sand, Trace Medium to Coarse Sand, Slight Solvent Odor | -- | 40.0 | |
| 6 | 14 | W | 7 | | Gray Brown, Fine to Coarse SAND (SP), Musty Odor | -- | 50.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start **2/13/96** End **2/13/96**
Driller **E & F Chief GH** Rig **CME 55**
Logger **DAP** Editor **PMS**
Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

JA0775.Gm:40775 ID. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB150**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **639.0**
Northing: **6452.9**
Easting: **5749.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 11 | | Gray Brown, Fine to Coarse SAND (SP), With Fine Gravel, Propane-Like Odor | -- | 0.0 | |
| 8 | 18 | W | 9 | | Gray Brown, Fine to Coarse SAND (SP), Clay Seam at 20 to 20.3 ft (SP) | -- | 7.0 | |
| 9 | 22 | M | 7 | | Stiff to Very Stiff, Gray Brown, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | 2.0-4.0 | 0.0 | |
| | | | | | End of Boring at 23.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB151**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.8**
Northing: **6763.8**
Easting: **5890.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Crushed Gravel, Slag (FILL) | | | |
| 1 | 12 | M | 14 | | Yellow Brown, Fine SAND (SP), Little Fine to Coarse Sand | -- | 7.0 | |
| 2 | 22 | M | 6 | | Orange Brown, Fine to Coarse SAND (SP), Little Fine Gravel, Grades to Olive Gray Staining at 4.2 ft | -- | 11.0 | |
| 3 | 20 | M/W | 6 | 5 | Black Stained, Fine to Coarse SAND and GRAVEL (GP), Becomes Olive Gray Stained, Fine to Coarse Gravel at 6 ft, Solvent Odor near Black Staining | -- | 15.0 | Field analysis for PCBs |
| 4 | 22 | W | 6 | | Gray/Green/Brown Stained, Fine to Coarse SAND and GRAVEL (GP), Grades into Dark Brown Fine to Medium Sand at 8.0 ft | -- | 30.0 | |
| 5 | 12 | W | 5 | 10 | Olive Brown, Fine to Coarse SAND and GRAVEL (GP), Grades into Dark Gray, Fine to Coarse Sand and Fine Gravel, Swampy Odor | -- | 166.0 | Field analysis for PCBs |
| 6 | 20 | W | 10 | | Gray Brown, Fine to Coarse SAND and GRAVEL (GP), Grades into Gray Brown, Fine to Medium Sand at 12.0 ft, Little Black Staining and Swampy Odor | -- | 180.0 | |
| 7 | 20 | W | | 15 | Gray Brown, Fine to Coarse SAND and Fine GRAVEL (GP) to 14.0 ft, Grades into Gray Brown Fine Sand | -- | 39.0 | |

WATER LEVEL OBSERVATIONS

*While Drilling ft. Upon Completion of Drilling ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 2/13/96 End 2/13/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 4 1/4" I.D. HSA

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB151**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.8**
Northing: **6763.8**
Easting: **5890.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 18 | | Gray Brown, Fine to Coarse SAND and GRAVEL (GP), Grades into Gray Brown Fine Sand, Black Stained from 16.5 to 17.0 ft | -- | 40.0 | |
| 9 | 18 | W | 21 | | Gray, Fine to Coarse SAND and GRAVEL (GP), Musty Odor Present | -- | 19.0 | |
| 10 | 20 | W/M | 18 | | Gray, Fine to Coarse SAND (SP), Very Strong Sour Odor Present | -- | 3251.0 | Field analysis for VOCs |
| | | | | 20 | Hard, Gray Brown, Clayey SILT to Silty CLAY (CL-ML), Black Staining Present | > 4.0 | | |
| 11 | 20 | M | | | | 3.0 | | |
| | | | | | Very Stiff, Gray Brown, Clayey SILT to Silty CLAY (CL-ML), Very Strong Sour Odor in Clay | | | |
| 12 | 24 | | | | Gravel in Shelby Tube | -- | | |
| | | | | 25 | | | | |
| | | | | | End of Boring at 25.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB152**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **639.2**
Northing: **6606.8**
Easting: **5818.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PI (ppm) | Remarks |
| | | | | | Gray Slag, Gravel Followed by Brown Fine Sand (FILL) | | | |
| 1 | 22 | M | 12 | | Light Brown Fine SAND (SP), Front Line at 2.5 ft | -- | 1.0 | |
| 2 | 24 | M/W | 4 | | Light Brown Fine SAND (SP), Some Black Streaks, Grades into Orange Brown, Fine to Coarse SAND and GRAVEL from 4.5 to 5.0 ft | -- | 1.0 | |
| 3 | 22 | W | 4 | 5 | Orange Brown to Brown, Fine to Coarse SAND and Fine GRAVEL (SP/GP), Some Rust Staining | -- | 1.0 | |
| 4 | 12 | W | 2 | | Gray, Olive/Green, Fine to Coarse SAND and GRAVEL (SP/GP), Grades to Black Staining from 8.0 to 9.0 ft, Solvent/Gasoline Like Odor Present | -- | 250.0 | Field analysis for PCBs |
| 5 | 20 | W | 10 | | Grades into Dark Gray Fine SAND (SP) at 10.0 ft, Solvent Odor Present | -- | 1395.0 | Field analysis for PCBs |
| 6 | 18 | W | 15 | | Dark Gray/Green, Fine to Coarse SAND and GRAVEL (SP/GP) to 11.5 ft Gray Brown Fine SAND and GRAVEL (SP/GP) from 11.5 to 12.0 ft | -- | 143.0 | |
| 7 | 16 | W | 9 | | Gray Brown Fine SAND (SP), Propane Like Odor Present | -- | 74.0 | |
| | | | | | Gray Green Fine to Coarse SAND and GRAVEL (SP/GP), Gray Brown Fine Sand, Propane Like Odor Present | | | |

WATER LEVEL OBSERVATIONS

While Drilling ∇ ft. Upon Completion of Drilling ∇ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 2/13/96 End 2/13/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J4077-Gen-40772 ID: CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB152**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **639.2**
Northing: **6606.8**
Easting: **5818.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 13 | | Gray Brown Fine SAND (SP), Some Fine to Coarse Gravel from 15.0 to 15.5 ft | -- | 88.0 | |
| 9 | 22 | W | 13 | | Gray Brown, Fine to Coarse SAND (SP), Propane Like Odor, 1 in. Clay Seam from 18.9 to 19.0 ft | -- | 69.0 | |
| 10 | 20 | W | 24 | 20 | Gray Brown, Fine to Coarse SAND (SP), Trace Silt and Clay, Propane Like Odor Present | -- | 4.0 | |
| 11 | 22 | W | 23 | | Stiff, Gray Clayey SILT (CL-ML) to SILT, Slight Sour Odor Present | 2.0 2.5 | 0.0 | |
| | | | | 25 | End of Boring at 23.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB201/A**
Job No. **4077.0075**
Sheet **1 of 1**
Surface Elevation **647.5**
Northing: **5674.8**
Easting: **4984.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Dirt/Grass Surface over Silty Sand (TOPSOIL) | | | |
| 1 | | M | 5 | | REFUSE | | | |
| 2 | | | | | | | | |
| | | | | 5 | | | | |
| 3 | | | | | | | | |
| | | | | 10 | | | | |
| | | | | 15 | | | | |
| | | | | | Auger Refusal and End of Boring at 8.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start **1/17/96** End **1/17/96**
Driller **E & F Chief** JE Rig **CME**
Logger **PMS Editor** DAP 850
Drill Method **3 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077-Gr-40270 ID. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB202**
Job No. **4077.0075**
Sheet **1 of 1**
Surface Elevation **640.4**
Northing: **6059.9**
Easting: **5011.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Dirt/Grass Surface over Silty Sand (FILL) | | | |
| 1 | 12 | M | 31 | | Gravel, Wood, Glass, Silt, Clay and Sand (FILL) | | | |
| 2 | | M | 6 | | Waste | | | |
| 3 | | | 52/3" | | Waste: Split Spoon was wet at 8 ft | | | |
| | | | | | Auger Refusal and End of Boring at 7.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/17/96 End 1/17/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J4077Gmt40770 ID: CHICAGO

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB202A**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **639.9**
Northing: **6077.4**
Easting: **5014.5**

J4077 Gint 40770 ID CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
 Location Griffith, Indiana

Boring No. **SB202A**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **639.9**
 Northing: **6077.4**
 Easting: **5014.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 5 | 24 | W | 12 | | Brown Gray, Silty, Fine to Medium SAND (SP), Trace Fine to Medium Gravel 1/2 in. Thin Gray Clay Stringers from 17.5 to 18 ft | | 6.0 | Field analysis for VOCs and PCBs |
| 6 | 24 | W | 15 | | Brown Gray, Silty Fine SAND (SP), Grading into Silt at 19.5 ft, Trace Gray Clay | | 0.0 | |
| | | | | 20 | Gray Clayey SILT (ML) | | | |
| | | | | | Gray Fine SAND (SP) | | | |
| 7 | 24 | M | 20 | | Negative Hydrophobic Dye Test | | 0.0 | |
| | | | | | Brown Gray CLAY (CL) | 4.0 | | |
| | | | | | End of Boring at 23.0 ft | | | |
| | | | | 25 | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB203**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **641.0**
Northing: **6029.0**
Easting: **5011.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Grass Surface Over Municipal REFUSE | | | |
| 1 | | W | | | REFUSE | | | |
| 2 | | W | 9 | | REFUSE: Wood, Paper, Grass, Plastic | | | |
| 3 | | W | 13 | | REFUSE | | | |
| 4 | | W | 26 | | REFUSE: Trace Paper and Plastic | | | |
| 5 | 18 | W | 19 | | REFUSE: Black Clay Mixed with Wood and Paper | | 1.0 | |
| | | | | | Gray, Silty Fine SAND (SM) | | | |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM), Trace Coarse Sand and Fine Gravel | | | |
| 6 | 12 | W | 17 | | Brown, Silty Fine SAND (SM) | | 42.0 | Field analysis for VOCs and PCBs |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

ile Drilling ft. Upon Completion of Drilling ft.
Time After Drilling
Depth to Water
Depth to Cave in

Start 1/18/96 End 1/18/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077.Gmt:40770.00 CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB203**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **641.0**
Northing: **6029.0**
Easting: **5011.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------|---------------------|-------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PI (ppm) | Remarks |
| 7 | 24 | W | 17 | | Brown, Silty Fine SAND (SM) | | 37.0 | Field analysis for VOCs and PCBs |
| 8 | 24 | W | 24 | | Brown, Silty Fine SAND (SM) | | 31.0 | |
| 9 | 24 | W | 21 | | Stiff, Gray Silty CLAY (CL) | 4.0 | 21.0 | |
| | | | | | End of Boring at 23.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB204**
Job No. **4077.0075**
Sheet **1** of **2**
Surface Elevation **641.9**
Northing: **5964.5**
Easting: **5012.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------|---------------------|--------------|------------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | REFUSE: Black Clayey Soil with Wood, Plastic and Paper | | | |
| 1 | | M | | | REFUSE: Wood, Moved South 2 ft | | | Two attempts made to move away from refusal |
| 2 | | M | 43 | | REFUSE | | | |
| 3 | | M | 7 | | REFUSE | | | |
| 4 | | M | 15 | | REFUSE | | | |
| 5 | 24 | W | 27 | | Brown, Silty, Fine to Medium SAND, Trace Fine to Coarse Gravel (SM) | | | |
| 6 | 24 | W | 11 | | Brown, Silty, Fine to Medium SAND, Trace Fine to Coarse Gravel (SM) | | 8.0 | Field analysis for VOCs and PCBs |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Time Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/18/96 End 1/18/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

24077ENR40772 1-1-96

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB204**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **641.9**
Northing: **5964.5**
Easting: **5012.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 24 | W | 17 | | Gray, Silty, Fine to Medium SAND (SM) | | 17.0 | Field analysis for VOCs and PCBs |
| 8 | 24 | W | 19 | | Gray, Silty, Fine to Medium SAND (SM), Trace Medium to Coarse Gravel | | 5.0 | |
| 9 | 24 | W | 20 | | Gray Silty CLAY (CL-ML) | 3.5-4.0 | 3.0 | |
| | | | | | End of Boring at 23.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB205**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **643.4**
Northing: **5913.8**
Easting: **5014.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | REFUSE: Grass Surface | | | |
| 1 | | M | 39 | | REFUSE: Brown, Silty, Fine to Medium Sand with Some Debris | | 45.0 | |
| 2 | 18 | W | 5 | 5 | Brown, Silty, Fine to Medium SAND (SM) | | 592.0 | Field analysis for VOCs |
| 3 | 18 | W | 4 | | Grades to Fine, Silty SAND (SM), Stained Black | | 1062.0 | Field analysis for VOCs |
| 4 | 18 | W | 4 | 10 | Brown, Silty, Fine SAND (SM) | | 530.0 | |
| 5 | 20 | W | 11 | | Brown Stained, Silty, Fine SAND (SM), Trace Clay | | 25.0 | |
| | | | | | Rust Coloration at 12 ft | | | |
| 6 | 18 | W | 19 | 15 | Grades to Gray, Silty, Fine to Medium SAND (SM) | | 27.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Time After Drilling 3.5 ft. Upon Completion of Drilling ft.
Depth to Water
Depth to Cave in

Start **1/19/96** End **1/19/96**
Driller **E & F** Chief **JE** Rig **CME**
Logger **PMS** Editor **DAP** **850**
Drill Method **3 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077SGR40772.DWG

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB205**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **643.4**
Northing: **5913.8**
Easting: **5014.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Fine to Coarse Sand and Gravel from 15 to 15.5 ft | | | |
| 7 | 18 | W | 26 | | Gray, Silty, Fine SAND (SM), No Black Staining Present | | 11.0 | |
| 8 | 18 | W | 12 | | Gray, Silty, Fine SAND (SM), No Black Staining Present | | 88.0 | |
| 9 | 24 | W/M | 19 | | Gray, Silty, Fine to Medium SAND (SM) | | 62.0 | |
| | | | | | Gray, Clayey SILT (ML), Trace Fine Sand | | | |
| | | | | | Gray, Silty CLAY (CL-ML) | | | |
| 10 | | M | 15 | | | 4.0 3.5 | 39.0 | |
| | | | | | End of Boring at 25.5 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON****LOG OF TEST BORING**

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB205A**
Job No. **4077.0075**
Sheet **1** of **2**
Surface Elevation **646.0**
Northing: **5930.6**
Easting: **4988.6**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------|----------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qsf) (tsf) | PID (ppm) | Remarks |
| | | | | | FILL: Gravel, Sand, Clay and Silt | | | |
| 1 | 24 | M | 46 | | | | 20.0 | |
| 2 | 12 | M | 15 | | | | 6.0 | |
| | | | | 5 | FILL: Brown, Silty, Fine to Coarse Sand, Trace Gravel and Clay | | | |
| 3 | 18 | M | 34 | | FILL: Dark Brown, Silty, Fine to Coarse Sand, Some Fine to Medium Gravel and Clay Coarse Gravel Lens from 7.5 to 8 ft | | 6.0 | |
| 4 | 12 | M | 6 | | FILL: Dark Brown, Silty Clay and Sand and Gravel Gray/Blue Clay from 9 to 9.5 ft | | 50.0 | Field analysis for PCBs |
| | | | | 10 | Wood/Paper Mixed with Clay and Silt from 9.5 to 10.5 ft | | | |
| 5 | | M/W | 8 | | FILL: Wood and Fabric in Tip of Spoon, No Recovery | | 0.0 | |
| 6 | 3 | M/W | 17 | | FILL: Wood in Split Spoon, Poor Recovery | | 13.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ∇ 14.0 ft. Upon Completion of Drilling ∇ _____ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/24/96 End 1/24/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB205A**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **646.0**
Northing: **5930.6**
Easting: **4988.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 6 | W | 7 | | FILL: Brown Silt, Clay, Gravel with Wood Pieces, Poor Recovery | | 5.0 | |
| | | | | | Dark Brown, Silty, Fine to Medium SAND (SM) | | | |
| 8 | 2 | W | 5 | | Wood in Split Spoon, Poor Recovery | | 0.0 | |
| | | | | 20 | | | | |
| 9 | 6 | W | 21 | | | | 60.0 | |
| | | | | | | | | |
| 10 | 6 | W | 17 | | Gray, Silty, Fine to Medium SAND (SM) | | 160.0 | Field analysis for VOCs and PCBs |
| | | | | 25 | | | | |
| | | | | | Gray, Silty CLAY (CL-ML) | | | |
| 11 | 12 | M | 27 | | Gray, Silty, Fine to Medium SAND (SM) | | 10.0 | |
| | | | | | Stiff, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | | | |
| | | | | | | | | |
| 12 | 18 | M | 18 | | | 4.0 | 0.0 | |
| | | | | 30 | | | | |
| | | | | | End of Boring at 30.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
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LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB206**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **644.6**
Northing: **5856.2**
Easting: **5013.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | REFUSE: Grass/Gravel Surface, Silty Fine to Medium Sand, Trace Silt, Clay and Fine Gravel | | | |
| 1 | 24 | M | 16 | | Thin Paper Layer at 2.8 ft | | 99.0 | 3" split spoon utilized for sample collection this borehole |
| 2 | 24 | M | 15 | | Brown Gray, Silty, Fine to Medium SAND (SP) Fine to Coarse SAND and GRAVEL Layer (SP/GP) Brown Gray, Silty, Fine to Medium SAND (SM) | | 161.0 | |
| 3 | 24 | W | 7 | 5 | | | 330.0 | Field analysis for VOCs and PCBs |
| 4 | 20 | M | 9 | | Light Brown, Fine to Medium SAND (SP) Dark Brown with Light Brown Bands, Silty, Fine to Medium SAND (SP) | | 192.0 | Field analysis for VOCs and PCBs |
| 5 | 18 | M | 12 | 10 | | | 192.0 | |
| 6 | 20 | M/W | 25 | | Dark Brown, Silty, Fine to Medium SAND (SM), Trace Clay Brown/Light Gray, Silty, Fine to Medium SAND (SM) | | 70.0 | |
| 7 | 18 | W | 15 | 15 | Brown/Light Gray, Silty, Fine to Medium SAND (SM) | | 7.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Wile Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
ne After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/22/96 End 1/22/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

4077-EM-001-00-000000

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB206**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **644.6**
Northing: **5856.2**
Easting: **5013.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 12 | | | | 7.0 | |
| 9 | 18 | W | 28 | | Gray, Silty, Fine to Coarse SAND and GRAVEL (SM/GM) | | 23.0 | |
| | | | | | Gray, Silty, Fine to Coarse SAND (SM) | | | |
| 10 | 20 | W | 5 | | Sand and Gravel Lens from 19 to 19.5 ft | | 38.0 | |
| | | | | 20 | | | | |
| 11 | 24 | W | 18 | | Gray, Silty, Fine to Medium SAND (SM), Trace Gravel | | 7.0 | |
| | | | | | 1/2" Silt Seam at 22.5 ft 1" silt Seam at 22.8 ft | | | |
| 12 | 24 | W/M | 17 | | Grades to Fine to Coarse Silty SAND and CLAY | | 1.0 | |
| | | | | | Gray Silty CLAY (CL) | > 4.0 | | |
| 13 | | | | 25 | CLAY (CL) | | | |
| | | | | | | | | |
| | | | | | End of Boring at 27.5 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB207**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **646.9**
Northing: **5801.1**
Easting: **4978.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Grass/Gravel Surface | | | |
| 1 | 18 | M | 25 | | REFUSE: Black Silty and Clayey Sand and Gravel with Cinders, Paper and Wood | | 0.0 | |
| 2 | 6 | M | 5 | | REFUSE: Paper, Plastic, Mostly Cinders, Sand and Gravel | | 0.0 | |
| 3 | 18 | M | 6 | | Dark Gray to Brown, Silty, Fine to Medium SAND (SM) | | 7.0 | |
| | | | | | Color Change to Dark Brown and Black at 7.8 ft | | | |
| 4 | 2 | M | 9 | | Black Silty SAND, Wood in Split Spoon Shoe, Plastic Sheeting Also (SM) | | 0.0 | |
| 5 | 18 | M/W | 23 | | | | | Difficulty retrieving spoon |
| 6 | 18 | W | 23 | | Gray, Silty Fine SAND (SM), Changes to Dark Gray at 14.5 ft, Black Staining at 14.8 and 15.2 ft | | 38.0 | Field analysis for VOCs and PCBs |

WATER LEVEL OBSERVATIONS

While Drilling ∇ 12.0 ft. Upon Completion of Drilling ∇ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 1/22/96 End 1/22/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

4077.Cat.4077.D. 11/96

**MONTGOMERY
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LOG OF TEST BORING

Project American Chemical Service, Inc.

Off-Site Containment Area

Location Griffith, Indiana

 Boring No. **SB207**

Job No. 4077.0075

Sheet 2 of 2

Surface Elevation 646.9

Northing: 5801.1

Easting: 4978.0

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 33 | | Brown, Silty, Fine to Coarse SAND (SM), Trace Fine Gravel | | 84.0 | Field analysis for VOCs and PCBs |
| | | | | | Brown/Gray Silty, Fine to Medium SAND (SM) | | | |
| 8 | 15 | W | 24 | | Gray, Silty, Fine to Medium SAND (SM) | | 23.0 | |
| 9 | 18 | W | 28 | | | | 69.0 | Field analysis for VOCs and PCBs |
| | | | | | 1" Gray Silt in Tip of Spoon | | | |
| 10 | 12 | W | 24 | | Gray, Silty, Fine to Medium SAND (SM) | | 23.0 | |
| | | | | | Gray, Clayey SILT (ML), Grades into Gray, Silty Sand | | | |
| 11 | 18 | W/M | 28 | | | | 33.0 | |
| | | | | | Gray CLAY (CL) | 4.0 | | |
| 12 | | M | | | | >4.0 | 0.0 | |
| | | | | 30 | End of Boring at 30.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB208**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 646.8
Northing: 5763.9
Easting: 4960.8

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 18 | M | 5 | | Gravel/Grass Surface with Brown Soil Over Black, Silty and Clayey, Fine to Medium Sand (FILL) FILL: Dark Gray/Brown/Black CLAY with Paper, Fabric and Plastic, Trace Cinders and Slag | | 16.0 | |
| 2 | 18 | M | 39 | | FILL: Wood, Cinders, Black, Silty Clay, Some Fine to Medium Gray Sand | | 116.0 | |
| 3 | 7 | M/W | 26 | | FILL: Wood, Trace to Some Black, Fine to Coarse Sand, Poor Recovery | | 83.0 | |
| 4 | 2 | W | 13 | | FILL: Wood and Clay, Poor Recovery | | 116.0 | |
| 5 | 16 | W | 13 | | Light to Dark Brown, Silty Fine SAND (SM) | | 3810.0 | Field analysis for VOCs and PCBs |
| 6 | 18 | W | 21 | | Light to Dark Brown, Silty Fine SAND (SM) | | 83.0 | |

| WATER LEVEL OBSERVATIONS | | | | GENERAL NOTES | |
|--------------------------|-----|-----|-----------------------------|---------------|------------------------|
| Time After Drilling | 7.5 | ft. | Upon Completion of Drilling | Start | 1/23/96 |
| Depth to Water | | | | Driller | E & F Chief JE Rig CME |
| Depth to Cave in | | | | Logger | PMS Editor DAP 850 |
| | | | | Drill Method | 3 1/4" I.D. HSA |

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB208**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 646.8
Northing: 5763.9
Easting: 4960.8

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 21 | | Gray, Silty, Fine to Medium SAND (SM), Trace to Some, Fine to Medium Gravel from 16 to 16.5 ft | | 249.0 | |
| 8 | 20 | W | 17 | | Fine to Coarse SAND and Fine GRAVEL (SP/GP) Dark Brown/Gray, Silty, Fine to Medium SAND (SM) | | 250.0 | |
| 9 | 24 | W | 18 | | Fine to Coarse SAND and Fine GRAVEL (SP/GP), Trace Silt Gray/Brown, Silty, Fine to Medium SAND (SM), Trace Clay | | 50.0 | |
| 10 | 18 | W | 21 | | Gray, Silty, Fine to Medium SAND (SM), Grades to Fine, Silty Sand Clayey Silt/Silty CLAY in Tip of Spoon | | 830.0 | Field analysis for VOCs and PCBs |
| 11 | 19 | W | 19 | | Gray Silty CLAY (CL-ML) | 3.5->4.0 | 7.0 | |
| | | | | | End of Boring at 28.0 ft Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB209**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **647.4**
Northing: **5715.5**
Easting: **4942.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Grass/Gravel/Soil Surface | | | |
| 1 | 18 | M | 4 | | FILL: Brown, Clayey Silt, Glass, Paper, Plastic | | 0.0 | |
| 2 | 18 | M | 10 | | FILL: Black, Silty, Fine to Medium Sand, Paper and Plastic | | 0.0 | |
| 3 | 4 | M/W | 5 | | FILL: Wood, Paper, Plastic, etc. | | 0.0 | |
| 4 | 2 | W | 13 | | FILL: Wood Only, No Sample Collected, Not Enough Volume | | 0.0 | |
| 5 | | W | 42 | | No Recovery - Refuse in tip of Spoon | | 0.0 | |
| 6 | | W | 14 | | Fabric in Tip of Spoon - No Recovery | | 0.0 | |
| <p>WATER LEVEL OBSERVATIONS</p> <p>Time After Drilling <u>12.0</u> ft. Upon Completion of Drilling <u>12.0</u> ft.</p> <p>Depth to Water _____</p> <p>Depth to Cave in _____</p> <p>The stratification lines represent the approximate boundary between soil types and the transition may be gradual.</p> | | | | | <p>GENERAL NOTES</p> <p>Start 1/23/96 End 1/23/96</p> <p>Driller E & F Chief JE Rig CME</p> <p>Logger PMS Editor DAP 850</p> <p>Drill Method 3 1/4" I.D. HSA</p> | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.

Off-Site Containment Area

Location Griffith, Indiana

 Boring No. **SB209**

Job No. 4077.0075

Sheet 2 of 2

Surface Elevation 647.4

Northing: 5715.5

Easting: 4942.1

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 35 | | Dark Gray, Silty, Fine to Coarse SAND and Fine Gravel (SM) | | | |
| | | | | | Brown Staining from 17 to 17.3 ft | | 149.0 | Field analysis for VOCs and PCBs |
| 8 | 18 | W | 26 | | Dark Brown/Gray, Silty, Fine to Coarse SAND and Fine GRAVEL (SM) | | 150.0 | Field analysis for VOCs and PCBs |
| 9 | 12 | W | 21 | | Dark Brown/Gray, Silty, Fine to Coarse SAND and Fine GRAVEL (SM) | | 140.0 | |
| 10 | 12 | W | 21 | | Gray, Silty, Fine to Medium SAND (SM), Trace to Little Clay, Silt Increases with Depth | | 10.0 | |
| 11 | 18 | W | 21 | | 1 in. Thin Silt Seam from 27 to 27.2 ft Brown, Clayey Silt in Tip of Spoon | | 0.0 | |
| 12 | 20 | M | 21 | | Gray, Silty CLAY, Trace Fine Gravel (CL-ML) | 4.0 | 0.0 | |
| | | | | 30 | End of Boring at 30.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB210**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 647.2
Northing: 5690.0
Easting: 4988.9

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 2 | M | 14 | | REFUSE: Wood and Paper in Spoon | | 5.0 | |
| 2 | 3 | M | 17 | | REFUSE: Plastic and Wood | | 0.0 | |
| 3 | 2 | M | 4 | | REFUSE: Wood and Paper, Trace Clay | | 23.0 | |
| 4 | 3 | M | 12 | | REFUSE: Black, Trace to Little, Fine to Medium Sand | | 350.0 | |
| 5 | 12 | M/W | 18 | | Light Brown, Fine to Coarse SAND (SP), Some Fine Gravel | | 122.0 | |
| 6 | 12 | W | 14 | | Gray, Silty, Fine to Medium SAND (SM) | | 80.0 | |

| WATER LEVEL OBSERVATIONS | | | | GENERAL NOTES | |
|--------------------------|------|-----|-----------------------------|---------------|------------------------|
| Time Drilling | 12.0 | ft. | Upon Completion of Drilling | Start | 1/23/96 |
| Time After Drilling | | | | Driller | E & F Chief JE Rig CME |
| Depth to Water | | | | Logger | PMS Editor DAP 850 |
| Depth to Cave in | | | | Drill Method | 3 1/4" I.D. HSA |

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB210**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 647.2
Northing: 5690.0
Easting: 4988.9

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | | W | 10 | | Gray, Silty, Fine to Coarse SAND (SM), Trace Fine to Coarse Gravel | | 283.0 | Field analysis for VOCs and PCBs |
| 8 | | W | 17 | | Gray Brown, Silty, Fine to Medium SAND (SM) | | 480.0 | Field analysis for VOCs and PCBs |
| | | | | 20 | Fine to Coarse, Fine to Medium GRAVEL (GP), Black Staining | | | |
| 9 | | W | 25 | | Light Brown, Silty, Fine to Medium SAND (SM) Gray, Silty, Fine to Coarse SAND (SM) | | 150.0 | |
| | | | | | Brown, Silty, Fine to Medium SAND (SM) | | | |
| 10 | | W | 12 | | | | 0.0 | |
| | | | | 25 | 1/2 in. Silt Seam at 24.5 and 24.6 ft | | | |
| 11 | | W | 19 | | Gray, Silty CLAY (CL-ML) | | 5.0 | |
| | | | | | | 4.0 | | |
| | | | | | End of Boring at 28.0 ft | | | |
| | | | | 30 | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB211**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **651.0**
Northing: **5663.6**
Easting: **5186.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 18 | M | 5 | | FILL: Brown to Black, Silty, Fine to Coarse Sand and Gravel, Some Clay, Cinders, Broken Glass | | 33.0 | |
| 2 | 14 | M | 2 | | FILL: Brown to Black, Silty, Fine to Coarse Sand and Gravel, Some Clay, Cinders, Broken Glass | | 73.0 | |
| | | | | 5 | Dark Brown to Gray, Silty, Fine to Coarse SAND (SM), Some Black Staining at 5 ft | | | |
| 3 | 14 | M | 4 | | Light Brown, Silty, Fine to Medium SAND (SM) | | 20.0 | |
| 4 | 18 | M/W | 5 | | | | 60.0 | Field analysis for VOCs and PCBs |
| | | | | 10 | Grades to Gray, Silty, Fine to Coarse SAND (SM), Little to Some Clay from 10 to 10.3 ft | | | |
| 5 | 17 | W | 7 | | Light Brown, Silty, Fine to Medium SAND (SM), Some Gray Coloration | | 33.0 | |
| 6 | 18 | W | 8 | | Light Brown, Silty, Fine to Medium SAND (SM), Some Gray Coloration, Propane-like Odor | | 5.0 | |

WATER LEVEL OBSERVATIONS

Time After Drilling 9.0 ft. Upon Completion of Drilling 9.0 ft.
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/24/96 End 1/24/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

J4077-Gmt-407722-1-01-DRILL LOG

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.

Off-Site Containment Area

Location Griffith, Indiana

 Boring No. **SB211**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **651.0**
 Northing: **5663.6**
 Easting: **5186.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM), Some Gray Coloration | | | |
| 7 | 24 | W | 10 | | Trace to Some, Fine to Coarse GRAVEL (GP) Light Brown, Silty, Fine to Coarse SAND (SM) | | 73.0 | |
| 8 | 15 | W | 7 | | Black Stained, Medium to Coarse SAND (SP) to Fine Gravel, Trace Silt Gray, Medium to Coarse, Silty SAND (SM) | | 233.0 | Field analysis for VOCs and PCBs |
| 9 | 20 | W | 16 | | Light Gray, Silty, Fine SAND (SM), Trace Medium to Coarse Sand | | 180.0 | |
| 10 | 18 | W | 26 | | Light Gray, Silty, Fine SAND (SM), Trace Medium to Coarse Sand | | 73.0 | |
| 11 | 24 | W | 22 | | Light Gray, Silty, Fine to Medium SAND (SM) | | 33.0 | |
| | | | | | Gray Clayey Silt from 27.8 to 28 ft | | | |
| 12 | 18 | W | | | Gray Silty CLAY (CL-ML) | | 0.0 | |
| | | | | | End of Boring at 30.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB212**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **649.4**
Northing: **5758.7**
Easting: **5453.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------|----------------------------------|--------------|----------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _a) (tsf) | PID (ppm) | Remarks |
| | | | | | FILL: Gravel Surface, Black, Silty, Clayey, Fine to Coarse Sand and Gravel | | | |
| 1 | 24 | M | 23 | | Light Brown/Rust Silty Fine to Medium SAND (SM) | | 0.0 | 3" split spoon utilized for this soil boring |
| 2 | 24 | M | 15 | | Dark Brown Change in Color at 3 ft | | 0.0 | |
| 3 | 18 | M/W | 9 | 5 | 2 in. Silt Seam | | 0.0 | |
| 4 | 18 | M | 12 | | Clayey Silt from 7 to 7.3 ft Light Brown/Rust Silty Fine to Medium SAND (SM) | | 0.0 | |
| 5 | 24 | M | 14 | 10 | Light Brown/Rust Silty Fine to Medium SAND (SM) | | 0.0 | |
| 6 | 24 | M | 17 | | Dark Brown/Rust, Silty, Fine to Medium SAND (SM) Grading to Fine to Coarse Sand, Trace Fine Gravel | | 0.0 | |
| 7 | 18 | W | 22 | | Dark Brown, Silty, Fine to Medium SAND (SM) | | 0.0 | |
| | | | | 15 | Dark Brown, Silty, Fine to Coarse SAND (SM), Trace Clay and Gravel | | | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Time Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/25/96 End 1/25/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LA077.Gmt.A2722 11-1996A2

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB212**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **649.4**
Northing: **5758.7**
Easting: **5453.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 18 | W | 9 | | Dark Brown, Silty, Fine to Coarse SAND (SM), Trace Clay and Gravel | | 280.0 | |
| 9 | 18 | W | 11 | | Black, Silty, Fine to Coarse SAND (SM) | | 1440.0 | |
| 10 | 12 | W | 16 | | Dark Gray, Silty, Fine to Coarse SAND and Fine Gravel (SM) | | 726.0 | Field analysis for VOCs and PCBs |
| 11 | 18 | W | 19 | | Black Stained, Fine to Coarse SAND (SM), Some Fine Gravel, Trace Coarse Gravel | | 1486.0 | |
| 12 | 18 | W | 22 | | Grades to Light Gray in Color, Trace Clay | | 1788.0 | Field analysis for VOCs |
| 13 | 12 | W | 17 | | Light Gray, Silty, Fine to Coarse SAND (SM) | | 515.0 | |
| 14 | 18 | W/M | 23 | | Light Gray, Silty, Fine to Coarse SAND (SM) | | 302.0 | |
| 15 | | | | | Gray, Silty CLAY and Clayey SILT (CL-ML), Trace to Some, Fine to Coarse Sand | > 4.0 | 25.0 | |
| | | | | 30 | End of Boring at 30.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB213**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 653.1
Northing: 5637.8
Easting: 5388.9

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | FILL | | | |
| 1 | 20 | M | 1 | | | | 0.0 | |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM) | | | |
| 2 | 19 | M | 6 | | | | 0.0 | |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM) | | | |
| 3 | 24 | M | 7 | | | | 0.0 | |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM) | | | |
| 4 | 24 | M/W | 6 | | | | 0.0 | |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM) | | | |
| 5 | 24 | W | 6 | | | | 0.0 | |
| | | | | | Rust Colored Banding Present from 11 to 13 ft | | | |
| 6 | 24 | W | 7 | | | | 0.0 | |
| | | | | | Grades to Dark Brown, Silty, Fine to Medium SAND (SM) | | | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Time After Drilling 13.0 ft. Upon Completion of Drilling 13.0 ft.
Depth to Water _____
Depth to Cave in _____

Start 1/25/96 End 1/25/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

34977-Gmt-49172-1D-CHPCAGU

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB213**
Job No. **4077.0075**
Sheet **2** of **2**
Surface Elevation **653.1**
Northing: **5637.8**
Easting: **5388.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 4 | | Brown/Rust, Silty, Fine to Coarse SAND (SM), Some Fine to Coarse Gravel | | 0.0 | |
| 8 | 18 | W | 21 | | | | 0.0 | |
| | | | | 20 | Light Brown, Silty, Fine to Coarse SAND and Fine GRAVEL (GS) | | | |
| 9 | 18 | W | 16 | | Gray, Silty, Fine to Coarse SAND (SM), Trace Fine Gravel | | 199.0 | |
| 10 | 8 | W | 18 | | Dark Gray, Silty, Fine to Coarse SAND (SM), Trace to Some, Fine to Coarse Gravel, Some Black Staining | | 106.0 | Field analysis for VOCs and PCBs |
| | | | | 25 | Coarse Broken Limestone and Gravel, Poor Recovery | | | |
| 11 | 15 | W | 27 | | Dark Gray, Silty, Fine to Medium SAND (SM) | | 199.0 | Field analysis for VOCs |
| 12 | 18 | W | 28 | | Coarse Gravel Present Thin Clay Seams (1/4") from 29 to 30 ft | | 160.0 | |
| | | | | 30 | CLAY (CL) | | | |
| | | | | | End of Boring at 31.0 ft Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB214**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **647.2**
Northing: **5946.4**
Easting: **5523.4**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|----------------------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _a) (tsf) | PID (ppm) | Remarks |
| | | | | | TOPSOIL/Scrub Surface | | | |
| 1 | 18 | M | 4 | | Light Brown, Silty, Fine to Medium SAND (SM) Some Rust Coloration | | 0.0 | |
| 2 | 24 | M | 9 | | | | 0.0 | |
| | | | | 5 | | | | |
| | 24 | M | 9 | | Slightly Lighter in Color | | 0.0 | |
| 4 | 24 | M | 15 | | | | 0.0 | |
| | | | | 10 | Light Brown, Silty, Fine to Coarse SAND (SM) with Trace to Little Fine Gravel | | | |
| 5 | 24 | M | 9 | | Trace Clay | | 0.0 | |
| 6 | 18 | M/W | 5 | | | | 767.0 | Field analysis for PCBs |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

Water Level Drilling ∇ 14.5 ft. Upon Completion of Drilling ∇ _____ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/26/96 End 1/26/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

FA017-Gar-40770-10-CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB214**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 647.2
Northing: 5946.4
Easting: 5523.4

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray with Brown Staining, Silty, Fine to Coarse SAND and Fine GRAVEL (SM/GM) | | | |
| 7 | 12 | W | 12 | | | | 480.0 | Field analysis for VOCs |
| 8 | 12 | W | 9 | | Gray, Silty, Fine to Coarse SAND and Fine GRAVEL (SM/GM) | | 552.0 | Field analysis for PCBs |
| | | | | 20 | 1 in. Thin Clayey SILT Lens at 22.5 ft | | | |
| 9 | 18 | W | 9 | | | | 552.0 | Field analysis for VOCs |
| 10 | 20 | W | 20 | | | | 480.0 | |
| | | | | 25 | Gray, Silty Fine SAND (SM) | | | |
| | | | | | Clayey SILT (ML) | | | |
| 11 | 24 | M | 19 | | Gray, Silty CLAY, Trace Fine Gravel (CL-ML) | 3.5 | 49.0 | |
| | | | | | | > 4.0 | | |
| | | | | | End of Boring at 28.0 ft | | | |
| | | | | 30 | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

Project **American Chemical Service, Inc.**
Off-Site Containment Area
 Location **Griffith, Indiana**

Boring No. **SB215**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **647.9**
Northing: **6126.2**
Easting: **5615.5**

407756142120 IL CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB215**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 647.9
Northing: 6126.2
Easting: 5615.5

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 12 | W | 4 | | | | 0.0 | |
| | | | | | Gray, Silty, Fine to Coarse SAND (SM) | | | |
| 9 | 24 | W | 10 | | | | 780.0 | Field analysis for VOCs and PCBs |
| | | | | | Gray, Silty, Fine to Medium SAND Grading to Silty, Fine to Coarse Sand with Some Fine Gravel (SM/GM) | | | |
| 10 | 24 | W | 9 | | | | 897.0 | Field analysis for VOCs and PCBs |
| | | | | 20 | Free Product, Sheen on Split Spoon | | | |
| | | | | | Black Staining Present | | | |
| 11 | 18 | W | 19 | | | | 520.0 | |
| | | | | | Dark Gray, Fine to Coarse SAND (SP), Trace to Little Silt | | | |
| 12 | 12 | W | 18 | | | | 634.0 | |
| | | | | | Trace to Some, Fine to Coarse Gravel (SP) | | | |
| 13 | 18 | W | 19 | | | | 85.0 | |
| | | | | 25 | | | | |
| 14 | 18 | W/M | 42 | | | | 145.0 | |
| | | | | | | | | |
| 15 | 18 | M | 46 | | | | 5.0 | |
| | | | | 30 | Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | | | |
| | | | | | End of Boring at 31.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB216**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **645.9**
Northing: **6325.7**
Easting: **5662.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Black, Silty, Clayey TOPSOIL | | | |
| 1 | 18 | M | 3 | | Light Brown, Silty, Fine to Medium SAND (SM) | | 0.0 | |
| 2 | 18 | M | 7 | | | | 0.0 | |
| 3 | 18 | M | 9 | | Silty, Fine to Coarse SAND with Trace Fine Gravel (SM) | | 0.0 | |
| 4 | 20 | M | 6 | | | | 0.0 | |
| 5 | 18 | M | 3 | | Gray at 12.5 ft, Silty, Fine to Coarse SAND (SM) | | 415.0 | Field analysis for PCBs |
| 6 | 18 | M | 3 | | Gray, Silty, Fine to Coarse SAND (SM), Trace Fine to Medium Gravel | | 4120.0 | Field analysis for VOCs and PCBs |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ 12.5 ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/29/96 End 1/29/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

14927-G-140772-JL-CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB216**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 645.9
Northing: 6325.7
Easting: 5662.3

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | M/W | 5 | | Gray Silty, Fine to Medium SAND (SM) | | 204.0 | |
| 8 | 18 | W | 8 | | | | 205.0 | |
| 9 | 12 | W | 10 | | | | 95.0 | |
| 10 | 18 | W | 24 | | | | 5.0 | |
| 11 | 18 | W/M | 33 | | Gray, Silty CLAY (CL-ML) | 4.0 | 0.0 | |
| | | | | | End of Boring at 28.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB220**
Job No. **4077.0075**
Sheet **1** of **2**
Surface Elevation **635.4**
Northing: **6496.9**
Easting: **5175.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PI (ppm) | Remarks |
| | | | | | Grass Surface, Dark Brown TOPSOIL with Grass | | | |
| 1 | 18 | M | 4 | | | | 0.0 | |
| | | | | | Brown Organic Rich, Silty Fine SAND (SM), Trace Clay | | | |
| 2 | 18 | W | 12 | | | | 0.0 | |
| | | | | | Dark Gray, Silty, Fine to Medium SAND (SM) | | | |
| 3 | 18 | W | 17 | | Trace Clay | | 63.0 | |
| 4 | 18 | W | 16 | | 2 in. Silt Seam at 10.0 ft Some Black Discoloration from 9.0 to 10.5 ft | | 263.0 | Field analysis for VOCs and PCBs |
| 5 | 18 | W | 21 | | Light Gray, Silty Fine to Medium SAND (SM) 2 in. Dark Gray, Silty CLAY/Clayey SILT Seam at 11.5 ft 1 in. Clayey SILT at 12.5 ft | | 1862.0 | Field analysis for VOCs and PCBs |
| 6 | 18 | W | 20 | | 1 in. SILT Lens from 14.0 to 14.5 ft | | 10.0 | |
| WATER LEVEL OBSERVATIONS | | | | | GENERAL NOTES | | | |
| Hole Drilling <input checked="" type="checkbox"/> ft. Upon Completion of Drilling <input checked="" type="checkbox"/> ft. Time After Drilling _____ Depth to Water _____ Depth to Cave in _____ | | | | | Start 1/30/96 End 1/30/96 Driller E & F Chief JE Rig CME Logger PMS Editor DAP 850 Drill Method 3 1/4" I.D. HSA | | | |
| The stratification lines represent the approximate boundary between soil types and the transition may be gradual. | | | | | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB220**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **635.4**
Northing: **6496.9**
Easting: **5175.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 24 | W | 20 | | Gray Silty CLAY (CL-ML) | 3.5 | 0.0 | |
| | | | | | | > 4.0 | | |
| | | | | | End of Boring at 18.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 20 | | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB221**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **634.0**
Northing: **6353.9**
Easting: **5138.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Black/Dark Brown, Clayey TOPSOIL | | | |
| 1 | 18 | W | 10 | | Dark Gray, Silty, Fine to Medium SAND (SM) | | 0.0 | |
| 2 | 18 | W | 12 | | Dense, Clayey, Silty, Fine to Coarse SAND (SM) | | 0.0 | |
| | | | | | Dark Gray, Silty Fine SAND (SM) | | | |
| 3 | 18 | W | 12 | 5 | | | 45.0 | |
| 4 | 18 | W | 30 | | | | 514.0 | |
| 5 | 18 | W | 32 | 10 | | | 3105.0 | Field analysis for VOCs and PCBs |
| 6 | 18 | W | 43 | | 3 in. CLAY Lens at 12 ft over 1 in. SAND Lens | | 1338.0 | Field analysis for VOCs and PCBs |
| | | | | | 2 in. CLAY Seam at 12.3 ft | | | |
| 7 | 24 | M | 43 | | Gray, Silty CLAY (CL-ML) | > 4.0 | 1264.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

hile Drilling ∇ _____ ft. Upon Completion of Drilling ∇ _____ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **1/31/96** End **1/31/96**
Driller **E & F** Chief **JE** Rig **CME**
Logger **PMS** Editor **DAP** **850**
Drill Method **3 1/4" I.D. HSA**

Project **American Chemical Service, Inc.**
Off-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB221**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **634.0**
Northing: **6353.9**
Easting: **5138.1**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | End of Boring at 15.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 20 | | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB222**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 638.6
Northing: 6223.4
Easting: 5069.4

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Dark Brown, Silty Clayey TOPSOIL | | | |
| 1 | 6 | M | 8 | | FILL: Black, Wood and Clayey, Poor Recovery | | 0.0 | |
| 2 | 8 | M | 15 | | | | 0.0 | |
| | | | | 5- | Black, Silty, Fine to Medium SAND (SM), Trace Coarse Gravel | | | |
| 3 | 8 | W | 20 | | Gray, Silty, Fine to Medium SAND (SM) | | 0.0 | |
| 4 | 18 | W | 14 | | Color Changing Dark Gray to Gray | | 15.0 | |
| | | | | 10- | | | | |
| 5 | 12 | W | 27 | | Dark Gray, Silty, Fine to Medium SAND (SM) | | 81.0 | |
| 6 | 12 | W | 24 | | | | 3015.0 | Field analysis for VOCs and PCBs |
| | | | | 15- | | | | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

Time Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/31/96 End 1/31/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

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**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB222**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.6**
Northing: **6223.4**
Easting: **5069.4**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 22 | | Gray, Clayey SILT (ML) 1 in. Sand Seam at 17.5 ft | | 154.0 | |
| 8 | 20 | M | 19 | | Gray, Silty CLAY (CL-ML) | 3.5 | 45.0 | |
| | | | | 20 | | > 4.0 | | |
| | | | | | End of Boring at 20.5 ft Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
On-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB223**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.5**
Northing: **6729.8**
Easting: **5059.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag, Gravel, Black Sand and Gravel (FILL) | | | |
| 1 | 14 | M | 5 | | Yellow Brown Fine SAND (SP), Trace Roots, Trace Fine Gravel | -- | 0.0 | |
| 2 | 16 | M | 4 | | Dark Yellow Brown to Brown, Fine SAND (SP), Little Silt and Clay, Musty Propane-Like Odor Present | -- | 6.0 | |
| 3 | 16 | W | 5 | | Light Olive Brown Fine SAND (SP), Musty Odor | -- | 6.0 | |
| 4 | 14 | W | 8 | | Gray to Olive Gray Brown Fine SAND (SP), Little Silt, Trace Medium to Coarse Sand and Gravel | -- | 3.0 | |
| 5 | 14 | W | 9 | | Gray Fine SAND (SP), Trace Organics, Roots | -- | 33.0 | |
| 6 | 14 | W | 9 | | Gray to Gray Brown Fine SAND (SP), Little Silt, Trace Medium to Coarse Sand and Fine Gravel, Sweet Propane Like Odor | -- | 6.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
ne After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start **2/12/96** End **2/12/96**
Driller **E & F** Chief **GH** Rig **CME 55**
Logger **DAP** Editor **PMS**
Drill Method **4 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
On-Site Containment Area
Location **Griffith, Indiana**

Boring No. **SB223**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.5**
Northing: **6729.8**
Easting: **5059.2**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 13 | | Gray Brown Fine SAND (SP), Sweet Propane Like Odor, Silt and Clay Lense from 17 to 17.2 ft | -- | 3.0 | |
| 8 | 18 | W/M | 8 | | Grades into Gray, Fine to Coarse SAND (SP) at 19.5 to 20.0 ft | 3.5-4.0 | 51.0 | |
| 9 | 12 | M | | | Very Stiff, Gray Silty CLAY (CL-ML) | 4.0 | | |
| | | | | | End of Boring at 22.5 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |

B2

PILOT TEST CELL SOIL BORING LOGS

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB145**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **639.6**
 Northing: **6797.4**
 Easting: **5603.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------|---------------------|--------------|---------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown SAND and GRAVEL (GP) | | | |
| 1 | 14 | M | 10 | | Light Brown Fine SAND (SP), Trace Fine Gravel | -- | 0.0 | PID headspace not measured on samples |
| 2 | 18 | M/W | 3 | | Brown Stained Fine SAND (SP), Grades into Gray Stained Fine Sand at 4.3 ft | -- | 0.0 | |
| 3 | 12 | W | 2 | | Brown Fine SAND (SP), Little Medium to Coarse Sand and Fine Gravel | -- | 0.0 | |
| 4 | 6 | W | | | Brown and Dark Brown Fine SAND (SP) | -- | 0.0 | |
| 5 | 8 | W | | | Dark Brown Staining Present | -- | 0.0 | |
| 6 | 4 | W | 16 | | Light Blue Paint Like Substance and Some Fine SAND (SP) | -- | 0.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **2/8/96** End **2/8/96**
 Driller **E & F Chief GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB145**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **639.6**
Northing: **6797.4**
Easting: **5603.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 12 | | Light Blue Paint Like Substance Coating on White Rubber Material | -- | 0.0 | |
| | | | | | Brown Fine SAND (SP) at 17.0 ft | | | |
| 8 | 18 | W | 9 | | Light Blue Paint Stained Fine SAND (SP) | -- | 0.0 | |
| | | | | 20 | | | | |
| 9 | 18 | W | 13 | | Gray Brown to Brown, Fine to Coarse SAND (SP), Gray Brown Silt at 22.2 to 22.5 ft | -- | 0.0 | |
| | | | | | | | | |
| 10 | 18 | M | 12 | | Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand | 4.5 | 0.0 | |
| | | | | 25 | | | | |
| | | | | | End of Boring at 25.5 ft | | | |
| | | | | | Borehole Abandoned with Natural Cave In and Bentonite Chips from 5 ft to Surface. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB146**
 Job No. **4077.0075**
 Sheet **1** of **2**
 Surface Elevation **639.6**
 Northing: **6783.8**
 Easting: **5610.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|----------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------|---------------------|--------------|---------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown SAND and GRAVEL (GS) | | | |
| 1 | 12 | M | 17 | | Gray Brown Fine SAND (FILL), Little Medium to Coarse Sand and Gravel | -- | 0.0 | PID headspace not measured on samples |
| 2 | 10 | M | 9 | | Brown Fine SAND (SP) | -- | 0.0 | |
| 3 | 12 | W | 5 | | Brown Stained Fine SAND (SP) | -- | 0.0 | |
| 4 | 0 | W | NR | | No Recovery | -- | 0.0 | |
| 5 | 18 | W | 7 | | Brown, Fine to Coarse SAND (SP) to 11.5 ft, Becomes Fine to Coarse Sand and Gravel from 11.5 to 12.5 ft | -- | 0.0 | |
| 6 | 10 | W | 12 | | Gray Brown Fine SAND (SP), Thin Silt Seam from 14.2 to 14.3 ft | -- | 0.0 | |
| | | | | 15- | | | | |
| WATER LEVEL OBSERVATIONS | | | | | GENERAL NOTES | | | |
| While Drilling <input checked="" type="checkbox"/> ft. Upon Completion of Drilling <input checked="" type="checkbox"/> ft. | | | | | Start 2/8/96 End 2/8/96 | | | |
| Time After Drilling _____ | | | | | Driller E & F Chief GH Rig CME 55 | | | |
| Depth to Water _____ | | | | | Logger DAP Editor PMS | | | |
| Depth to Cave in _____ | | | | | Drill Method 2 1/4" I.D. HSA | | | |
| The stratification lines represent the approximate boundary between soil types and the transition may be gradual. | | | | | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB146**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **639.6**
Northing: **6783.8**
Easting: **5610.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 14 | | Gray Brown Fine SAND (SP), Little to Some, Medium to Coarse Sand and Fine Gravel | -- | 0.0 | |
| 8 | 16 | W | 12 | | Gray Brown Fine SAND (SP), Little Silt | -- | 0.0 | |
| | | | | 20 | | | | |
| | 18 | W | 12 | | Gray Brown, Fine to Coarse SAND and Fine GRAVEL (SP), Tip of Split Spoon had Clay in it | -- | 0.0 | |
| 10 | | W | | | Gray Brown, Fine to Coarse SAND (SP), Silt Seam from 23.5 to 23.6 ft | | | |
| 11 | | M | 18 | 25 | Very Hard to Stiff, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | 4.0- > 4.5 | | |
| | | | | | End of Boring at 26.0 ft | | | |
| | | | | | Borehole Abandoned with Natural Cave In and Bentonite Chips from 5 ft to Surface. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB147**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **639.7**
Northing: **6777.3**
Easting: **5597.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------|---------------------|--------------|---------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Brown Fine SAND (SP) | | | |
| 1 | 10 | M | 12 | | | -- | 0.0 | PID headspace not measured on samples |
| 2 | 16 | W | 7 | | Gray Stained Fine SAND (SP) | -- | 0.0 | |
| | | | | 5 | | | | |
| 3 | 16 | W | 2 | | Olive Brown Fine SAND (SP) | -- | 0.0 | |
| | | | | | | | | |
| 4 | 16 | W | 5 | | Olive Brown to Brown Stained, Fine to Coarse SAND (SP) | -- | 0.0 | |
| | | | | 10 | | | | |
| 5 | 14 | W | 2 | | Olive Brown to Brown Stained, Fine to Coarse SAND (SP) | -- | 0.0 | |
| | | | | | | | | |
| 6 | 14 | W | 7 | | Olive Brown to Brown Fine SAND (SP) | -- | 0.0 | |
| | | | | 15 | | | | |
| | | | | | | | | |

| WATER LEVEL OBSERVATIONS | | | | GENERAL NOTES | |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------|---------------|---------------|---------------------------|
| While Drilling | <u> </u> ft. | Upon Completion of Drilling | <u> </u> ft. | Start | 2/8/96 |
| Time After Drilling | <u> </u> | | | Driller | E & F Chief GH Rig CME 55 |
| Depth to Water | <u> </u> | | | Logger | DAP Editor PMS |
| Depth to Cave in | <u> </u> | | | Drill Method | 2 1/4" I.D. HSA |
| The stratification lines represent the approximate boundary between soil types and the transition may be gradual. | | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB147**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **639.7**
 Northing: **6777.3**
 Easting: **5597.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 10 | | Olive Brown to Brown Fine SAND (SP) | -- | 0.0 | |
| 8 | 18 | W | 9 | | Dark Gray Brown Fine SAND (SP), Some Medium to Coarse Sand and Fine Gravel | -- | 0.0 | |
| 9 | 14 | W | 14 | | Gray, Fine to Coarse SAND (SP), Trace to Little Fine Gravel | -- | 0.0 | |
| 10 | 18 | W/M | 11 | | Very Stiff, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Fine Gravel | | | |
| | | | | 26.0 | End of Boring at 26.0 ft Abandoned with Native Back Fill Cave-in, Bentonite Chips to Surface | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB148**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **639.5**
Northing: **6785.2**
Easting: **5620.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown SAND and GRAVEL (GP) | | | |
| 1 | | | N/A | | CONCRETE | -- | 0.0 | PID headspace not measured on samples |
| 2 | 12 | M | 8 | | Brown, Fine to Medium SAND (SP), Solvent Odor Present | -- | 0.0 | |
| | | | | 5 | | | | |
| | 14 | M | 4 | | Brown, Fine to Coarse SAND (SP), Trace Fine Gravel | -- | 0.0 | |
| | | | | | | | | |
| 4 | 0 | | | | | -- | 0.0 | |
| | | | | 10 | | | | |
| 5 | 4 | W | 6 | | Brown to Dark Brown Stained, Fine to Coarse SAND and GRAVEL (SP) | -- | 0.0 | |
| | | | | | | | | |
| 6 | 12 | W | 9 | | Gray Brown, Fine to Coarse SAND and Fine GRAVEL (SP) to 14.2 ft, Then into Gray Brown Fine Sand | -- | 0.0 | |
| | | | | 15 | | | | |
| WATER LEVEL OBSERVATIONS | | | | | GENERAL NOTES | | | |
| While Drilling <input checked="" type="checkbox"/> ft. Upon Completion of Drilling <input type="checkbox"/> ft. Time After Drilling _____ Depth to Water _____ Depth to Cave in _____ | | | | | Start 2/9/96 End 2/9/96 Driller E & F Chief GH Rig CME 55 Logger DAP Editor PMS Drill Method 2 1/4" I.D. HSA | | | |
| The stratification lines represent the approximate boundary between soil types and the transition may be gradual. | | | | | J40275Gmt40770 ID. CHICAGO | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB148**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **639.5**
Northing: **6785.2**
Easting: **5620.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PI (ppm) | Remarks |
| 7 | 18 | W | 9 | | Gray Brown Fine SAND (SP) | -- | 0.0 | |
| 8 | 18 | W | 8 | | Gray Brown to Gray, Fine to Medium SAND (SP), Little Coarse Sand to 19.0 ft, Grades into Gray Brown Fine Sand, Gray Silt from 19.6 to 20.0 ft | -- | 0.0 | |
| 9 | 18 | W | 10 | | Gray, Fine to Coarse SAND (SP), Gray Clayey Silt in Tip of Spoon at 22.3 ft | -- | 0.0 | |
| 10 | 18 | W/M | 14 | | Stiff, Gray, Clayey SILT to Silty CLAY (CL-ML) | 2.5-3.0 | 0.0 | |
| | | | | 25 | End of Boring at 25.0 ft Abandoned with Natural Cave in of Soils and Bentonite Chips from 6.0 to Surface, Topped at Surface with Gravel | | | |
| | | | | 30 | | | | |

Project American Chemical Service, Inc.
Off-Site Contaminant Area
Location Griffith, Indiana

Boring No. **SB224**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **646.9**
Northing: **6197.5**
Easting: **5301.8**

4077:Gm40770 :H. CHICAGO

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB224**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **646.9**
Northing: **6197.5**
Easting: **5301.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 12 | W | 2 | | Light Purple/Brown Coated Spoon, Light Brown to Yellow-Brown, Oily, Fine SAND (FILL) | -- | 0.0 | |
| 8 | 8 | W | 11 | | Light Olive Brown, Fine to Coarse SAND (SP) | -- | 0.0 | |
| 9 | 12 | W | 10 | | Brown to Olive Brown, Fine to Coarse SAND (SP), Trace fine to Coarse Silt and Fine Gravel | -- | 0.0 | |
| 10 | 12 | W | 7 | | Brown Fine SAND (SP), Some Dark Gray Staining from 24.5 to 25.0 ft | -- | 0.0 | |
| 11 | 16 | W/M | 8 | | Brown Fine Sand (SP), Grading into Gray Brown Fine to Coarse SAND at 26.5 ft | -- 3.5 | 0.0 | |
| 12 | 0 | M | -- | | Very Stiff, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | 3.5-4.5 | 0.0 | |
| | | | | | Very Stiff, Gray Silty CLAY (CL-ML) | | | |
| | | | | | End of Boring at 29.5 ft | | | |
| | | | | | Borehole Backfilled with Natural Cave-in and Bentonite Chips | | | |

Project American Chemical Service, Inc.
Off-Site Contaminant Area
Location Griffith, Indiana

Boring No. **SB225**
Job No. **4077.0075**
Sheet **1** of **2**
Surface Elevation **647.3**
Northing: **6208.5**
Easting: **5283.1**

J4077Gint\40770 ID CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB225**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **647.3**
Northing: **6208.5**
Easting: **5283.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 11 | | Dark Brown, Varnish Like Stained Fine Sand to 16.5 ft, Grades into Brown Fine Sand then to Olive Brown Fine Sand from 17.0 ft to 17.5 ft (FILL) | -- | 0.0 | |
| 8 | 16 | W | 10 | | Brown to Olive Brown Stained Fine SAND (SP) | -- | 0.0 | |
| 9 | 0 | W | 15 | | Brown to Olive Brown, Fine to Coarse SAND (SP), Trace Fine Gravel | -- | | |
| 10 | 18 | W | 9 | | Olive Gray, Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine Gravel, Thin Black Stained Layers, 1 in. Apart from 24.4 to 25.0 ft | -- | | |
| 11 | 18 | W/M | 6 | | Olive Brown/Gray, Fine to Coarse SAND (SP), Little Fine Gravel | -- | | |
| | | | | | Very Stiff, Gray Silty CLAY (CL-ML) | 3.5 | | |
| 12 | 16 | M | 11 | | Very Stiff, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand | 4.0-4.5 | | |
| | | | | | End of Boring at 30.0 ft | | | |
| | | | | | Borehole Backfilled with Cave-in and Bentonite Chips | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB226**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **647.5**
Northing: **6192.7**
Easting: **5286.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------|---------------------|--------------|-------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 12 | M | 5 | | Gray Brown Clay and Fine Sand (FILL) | -- | | PID headspace not measured |
| 2 | 8 | M | 9 | | Gray Brown Clay and Sand, Grades into Dark Gray-Stained Fine Sand (FILL) | -- | | |
| 3 | 6 | M | 22 | | Silty Clay, Metal, Plastic (FILL) | -- | | |
| 4 | 4 | W | 3 | | Dark Brown and Grayish White Stained, Fibrous Material (FILL) | -- | | |
| 5 | 0 | | 6 | | No Recovery (FILL) | -- | | |
| 6 | 10 | W | 12 | | Light Gray Stained Fine Sand and Silt (FILL) | -- | | |
| | | | | | Olive Brown Fine SAND (Native Soil) (SP) | | | |

| WATER LEVEL OBSERVATIONS | | | | GENERAL NOTES | | | |
|--------------------------|-----|-----------------------------|-----|---------------|-----------------|--------|---------------|
| While Drilling | ft. | Upon Completion of Drilling | ft. | Start | 2/7/96 | End | 2/7/96 |
| Time After Drilling | | | | Driller | E & F | Chief | GH Rig CME 55 |
| Depth to Water | | | | Logger | DAP | Editor | PMS |
| Depth to Cave in | | | | Drill Method | 2 1/4" I.D. HSA | | |

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB226**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **647.5**
Northing: **6192.7**
Easting: **5286.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _u) (tsf) | PID (ppm) | Remarks |
| 7 | 10 | W | 14 | | Brown to Olive Brown Fine SAND (SP), Some Dark Brown Staining | -- | | |
| 8 | 14 | W | 10 | | Olive Gray Brown, Fine to Coarse SAND and Fine GRAVEL (SP) | -- | | |
| 9 | 16 | W | 16 | | Gray Brown Fine SAND (SP), Little to Some Fine Sand and Gravel | -- | | |
| 10 | 14 | W | 14 | | Olive Gray Brown, Fine to Coarse SAND (SP), Little Medium to Coarse Sand and Gravel, Silt Seam from 24.3 to 24.6 ft | -- | | |
| 11 | 18 | W/M | 11 | | Gray Fine SAND (SP), Little Medium to Coarse Sand | 4.0- >4.5 | | |
| | | | | | Stiff to Hard, Silty CLAY (CL-ML) | | | |
| 12 | 16 | M | 12 | | Very Stiff, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | 4.0 4.5 | | |
| | | | | | End of Boring at 30.0 ft | | | |
| | | | | | Borehole Backfilled with Cave-in and Bentonite Chips | | | |

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB227**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **646.9**
Northing: **6212.0**
Easting: **5297.6**

J4077Xent:40770 ID. CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Off-Site Contaminant Area
Location **Griffith, Indiana**

Boring No. **SB227**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **646.9**
Northing: **6212.0**
Easting: **5297.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _a) (tsf) | PID (ppm) | Remarks |
| | | | | | Soil) | | | |
| 7 | 14 | W | 9 | | Brown Fine SAND (SP), Some Thin (< 1.0 inch) Black Stained Seams from 16.5 to 17.5 ft | -- | | |
| 8 | 14 | W | 10 | | Brown to Gray Brown Fine SAND (SP), Little Medium to Coarse Sand and Fine Gravel, Dark Brown Stained Zone from 19.2 to 19.4 ft | -- | | |
| 9 | 18 | W | 8 | | Brown to Gray Brown, Fine to Coarse SAND (SP) | -- | | |
| 10 | 18 | W | 11 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand and Fine Gravel, Grades to Gray in Color at 24.5 ft | -- | | |
| 11 | 18 | W/M | 10 | | Gray Brown to Gray Stained, Fine SAND (SP) to 27.1 ft | -- | | |
| | | | | | Very Stiff, Silty CLAY (CL-ML) | 3.5-4.5 | | |
| 12 | 18 | M | 12 | | | 4.0- > 4.5 | | |
| | | | | | End of Boring at 29.5 ft | | | |
| | | | | | Borehole Backfilled with Cave-in and Bentonite Chips | | | |

B3

REMAINING SOIL BORING LOGS

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB101**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.9**
 Northing: **6892.9**
 Easting: **5253.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown Sand and Gravel (Slag) (FILL) | | | |
| 1 | 12 | M/W | 5 | | Dark Brown to Black Stained, Fine SAND (SP), Grades into Gray Brown, Fine to Coarse SAND, Little Fine to Coarse Gravel | -- | 5580.0 | Field analysis for VOCs and PCBs |
| 2 | 12 | W | 4 | | Gray Fine SAND, Little Medium to Coarse Sand (SP), Slight Organic Odor | -- | 1380.0 | Field analysis for VOCs and PCBs |
| 3 | 18 | W | 8 | | Gray Fine SAND (SP), Trace Medium Sand, Slight Organic Odor | -- | 579.0 | |
| 4 | 18 | W | 7 | | | -- | 215.0 | |
| 5 | 20 | W | 14 | | | -- | 179.0 | |
| 6 | 18 | W | 14 | | Slight Organic Odor Present | -- | 65.0 | |

| WATER LEVEL OBSERVATIONS | | | | GENERAL NOTES | |
|--------------------------|-----|-----------------------------|-----|---------------|---------------------------|
| While Drilling | ft. | Upon Completion of Drilling | ft. | Start | 1/17/96 End 1/17/96 |
| Time After Drilling | | | | Driller | E & F Chief GH Rig CME 55 |
| Depth to Water | | | | Logger | DAP Editor PMS |
| Depth to Cave in | | | | Drill Method | 2 1/4" I.D. HSA |

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB101**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.9**
 Northing: **6892.9**
 Easting: **5253.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------|---------------------|-------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PI (ppm) | Remarks |
| | | | | | | | 238.0 | |
| 7 | 20 | W | 8 | | Gray Brown Fine SAND (SP), Trace Silt and Shell Fragments, Slight Organic Odor Present | -- | 238.0 | |
| 8 | 20 | W | 14 | | | | 1348.0 | |
| | | | | 20 | Very Stiff, Gray CLAY (CL) | -- | 1211.0 | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB102**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.8**
Northing: **6873.7**
Easting: **5269.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 12 | M | 9 | | Green and Brown CLAY (CL) | -- | 623.0 | |
| | | | | | Black Stained Fine SAND, Organic Odor and Roots Present | | | |
| 2 | 18 | M/W | 4 | | Black and Gray Stained Fine SAND (SP) to 4.5 ft, Grades to Brown Fine SAND (SP), Organic Odor Present | -- | 3801.0 | Field analysis for VOCs and PCBs |
| | | | | 5 | | | | |
| 3 | 20 | W | 8 | | Light Gray Brown Fine SAND (SP), Organic Odor Present | -- | 603.0 | |
| | | | | | Gray Fine SAND (SP), Trace Medium to Coarse Sand, Organic Odor | | | |
| 4 | 20 | W | 5 | | | -- | 2735.0 | |
| | | | | 10 | | | | |
| 5 | 18 | W | 5 | | Trace Shell Fragments and Organic Odor Present | -- | 146.0 | |
| | | | | | | | | |
| 6 | 20 | W | 10 | | Gray and Brown Fine SAND (SP), Little Medium to Coarse Sand, Trace Shells and Shell Fragments, Organic Odor Present | -- | 432.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 1/17/96 End 1/17/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB102**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.8**
Northing: **6873.7**
Easting: **5269.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 10 | | Gray Brown Fine SAND (SP), Trace Shells, Trace Medium to Coarse Sand, Organic Odor Present | -- | 704.0 | |
| 8 | 16 | W | 15 | | Gray Clay Zone at 19.5 to 19.8 ft Grades into Gray and Brown, Fine to Coarse SAND and GRAVEL (GP), Organic Odor Present | -- | 3245.0 | Field analysis for VOCs and PCBs |
| 9 | 22 | M | 10 | | Very Stiff, Gray Brown, Silty CLAY (CL) | 4.0 | 1325.0 | |
| | | | | | End of Boring at 23.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB103**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.8**
 Northing: **6855.1**
 Easting: **5287.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 20 | M | 6 | | Dark Brown Fine SAND (SP), Little Silt, Trace Organics, Roots, Organic Odor Present, Some Black Staining from 1 to 2 ft | -- | 1041.0 | Field analysis for PCBs |
| 2 | 20 | M/W | | | Black Sandy SILT (ML), Trace Organics (Roots), Organic Odor Present | -- | 0.0 | Possible topsoil layer, organic roots |
| 3 | 18 | W | | | Olive Brown Fine SAND (SP), Little Silt, Organic Odor Present | -- | 0.0 | |
| 4 | 20 | W | | | Gray Brown to Gray Fine SAND (SP), Organic Odor Present | -- | 0.0 | |
| 5 | 16 | W | | | Dark Gray Fine SAND (SP), Little Medium to Coarse Sand from 12 to 12.5 ft, Organic Odor Present | -- | 50.0 | |
| 6 | 18 | W | 14 | | Dark Gray Fine SAND (SP), Trace Silt, Organic Odor Present | -- | 328.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **1/17/96** End **1/17/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

14077.Gmt.40770.D, CHICAGO

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB103**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.8**
 Northing: **6855.1**
 Easting: **5287.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | | | Gray Fine SAND (SP), Little Silt, Clay Lens from 17.5 to 17.6 ft, Organic Odor Present | -- | 821.0 | Clay zone 17.5-17.6 ft |
| 8 | 18 | W/M | | | Gray Brown Fine SAND (SP), Little to Some, Medium to Coarse Sand, Strong Organic Odor Present, Brown Oily Substance Present | -- | 592.0 | Field analysis for VOCs and PCBs Hydrophobic dye test positive |
| | | | | 20 | Gray SILT (ML), Trace to Little Fine Sand and Clay at 19.5 ft | | | |
| 9 | 20 | M | | | Gray, Silty CLAY (CL) | 4.0 | 1051.0 | |
| | | | | 25 | End of Boring at 23.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB104**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.8**
 Northing: **6838.3**
 Easting: **5304.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|-----------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _u) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Slag (FILL) | | | |
| 1 | 10 | W | 4 | | Black Stained Fine SAND (SP), Some Gravel and Wood, Petroleum Odor Present | -- | 52.0 | Poor recovery, petroleum odor |
| 2 | 8 | W | 9 | | Dark Gray, Fine SAND and GRAVEL (GP), Pieces of Wood from 5 to 5.5 ft, Sheen and Petroleum Odor Present | -- | 24.0 | Poor recovery, sheen and petroleum odor |
| 3 | | | | | | -- | 0.0 | No recovery |
| 4 | 6 | W | 2 | | Black Stained Fine SAND (SP), Little Fine Gravel, Roots, Small Pieces of Wood, Petroleum-Like Odor Present | -- | 1270.0 | Poor recovery |
| 5 | 18 | W | 10 | | Black and Gray Stained, Fine to Coarse SAND (SP), Organic Odor Present | -- | 48.0 | |
| 6 | 16 | W | 12 | | Black Stained Fine SAND (SP), Trace Shell Fragments and Fine Gravel (Chert) to 14 ft, Grades into Gray Brown Fine Sand, Organic Odor Present | -- | 103.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **1/18/96** End **1/18/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB104**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.8**
Northing: **6838.3**
Easting: **5304.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | | | Gray Brown, Fine SAND (SP), Little Silt, Trace Fine Gravel, Organic Odor Present | -- | 193.0 | |
| 8 | 18 | W/M | 9 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand | -- | 772.0 | Field analysis for VOCs and PCBs |
| | | | | 20 | Very Stiff, Gray, Silty CLAY (CL), Trace Fine to Coarse Sand and Fine Gravel | 4.0 > 4.0 | | |
| | 20 | W | 12 | | Gray Clayey SILT (ML), Trace to Little Fine Sand | | 1050.0 | |
| | | | | 25 | End of Boring at 22.5 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB105**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.8**
 Northing: **6817.9**
 Easting: **5321.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 10 | W | 5 | | Black Stained GRAVEL (GP), Black Stained Fine Sand, Organic Odor Present | -- | 115.0 | Poor recovery |
| 2 | | | 4 | | | -- | 0.0 | No recovery |
| 3 | 18 | W | 5 | | Dark Olive Brown, Fine SAND (SP), Trace Silt and Organics, Sheen Present at 6.5 ft, Organic Petroleum Odor Present | -- | 1249.0 | |
| 4 | 18 | W | 6 | | Petroleum Staining Present Very Strong Pink, Purple, Green Sheen | -- | 2259.0 | Field analysis for VOCs and PCBs |
| 5 | 18 | W | 10 | | | -- | 284.0 | |
| 6 | | W | 9 | | Dark Gray Brown, Fine SAND (SP), Organic Petroleum Odor Present | -- | 404.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **1/18/96** End **1/18/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB105**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.8**
Northing: **6817.9**
Easting: **5321.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 13 | | Brown, Stained Fine SAND (SP), Trace Silt and Clay, Petroleum Sheen and Odor Present | -- | 659.0 | Strong sheen |
| 8 | 20 | W/M | 8 | | Brown, Fine to Coarse SAND (SP), Trace Silt and Clay, Organic Odor Present | -- | 1269.0 | Field analysis for VOCs and PCBS |
| | | | | 20 | Very Stiff, Silty Gray CLAY (CL) | 4.0 | | |
| 9 | 18 | M | 9 | | Gray Brown, Silty CLAY (CL), Trace Fine to Coarse Sand | < 4.0 | 109.0 | |
| | | | | | End of Boring at 22.5 ft | | | |
| | | | | 25 | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB106**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.8**
 Northing: **6802.1**
 Easting: **5339.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| Nc. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 12 | M | 6 | | Black Stained, Brown Clay FILL, Some Gravel, Over Black Stained Brown Fine Sand and Silt, Petroleum Odor Present | -- | 4.0 | |
| 2 | 12 | M/W | 6 | | Black Stained Brown, Fine SAND (SP), Some Silt, Trace Clay, Petroleum Odor and Sheen Present | -- | 497.0 | Petroleum sheen |
| 3 | 10 | W | 6 | | Dark Gray Stained Fine SAND (SP), Little Silt, Petroleum Odor Present | -- | 298.0 | |
| 4 | 16 | W | 3 | | Black Stained Fine SAND (SP), Grades into Olive Brown Stained, Fine Sand, Little Silt, Organic Odor Present | -- | 1012.0 | Field analysis for VOCs and PCBs |
| 5 | 18 | W | | | Dark Brown, Fine SAND (SP), Grades into Fine to Coarse Sand at 11.5 to 12.5 ft, Petroleum Sheen at 12.0 ft, Grades Back into Brown Fine Sand at 12.5 ft, Petroleum Odor Present | -- | 275.0 | Petroleum sheen at 12.0 ft |
| 6 | 12 | W | | | Dark Brown to Black Stained, Fine SAND (SP), Thin Fine to Coarse Sand Seam at 15.0 ft | -- | 120.0 | |

WATER LEVEL OBSERVATIONS
GENERAL NOTES

While Drilling ft. Upon Completion of Drilling ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **1/18/96** End **1/18/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

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**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB106**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.8**
Northing: **6802.1**
Easting: **5339.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | | | Clay Lens from 15.2 to 15.4 ft Brown Stained Fine SAND (SP) at 15.4 ft, Organic Odor Present Brown Fine SAND (SP), Little Silt, Organic Odor Present | -- | 154.0 | |
| 8 | 18 | M/W | | | Gray Brown Fine SAND (SP), Little Silt to 20.2 ft, Organic Odor Present | -- | 1833.0 | Field analysis for VOCs and PCBs |
| | | | | 20 | Very Stiff, Gray Silty CLAY (CL), Trace Fine to Coarse Sand | 4.0 | | |
| 9 | 12 | M | | | Hard, Gray Brown, Silty CLAY (CL), Trace Fine to Coarse Sand | >4.5 | 199.0 | |
| | | | | | End of Boring at 22.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB107**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.8**
Northing: **6782.4**
Easting: **5356.8**

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**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB107**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.8**
 Northing: **6782.4**
 Easting: **5356.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 14 | | Gray Brown, Fine to Coarse SAND (SP), Small Brown Oily Zone at Interface of Fine to Coarse and Fine Sand, Grades into Gray Brown Fine Sand at 17 ft | -- | 1016.0 | |
| 8 | 20 | W/M | 12 | | Gray Brown, Fine to Coarse SAND (SP) | > 4.5 | 210.0 | Hydrophobic dye test positive |
| | | | | 20 | Gray Silty CLAY (CL) | | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB108**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.6**
 Northing: **6764.6**
 Easting: **5372.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 12 | W | 13 | | Black Stained, Fine to Coarse SAND and GRAVEL (GP), Grades into Black Stained Fine Sand, Organic Odor Present | -- | 75.0 | |
| 2 | 12 | W | 13 | | Black Stained, Fine to Coarse SAND and GRAVEL (GP) Over Brown Black Clay, Silt, Gravel and a Large Piece of Wood | -- | 9922.0 | Field analysis for VOCs and PCBs |
| 3 | 8 | W | 17 | 5- | Black Stained Fine SAND (SP), Silt, Pieces of Wood, Grades into Brown Fine Sand, Pieces of Wood, Solvent Odor Present | -- | 9743.0 | |
| 4 | 12 | W | 15 | | Gray Stained Fine SAND (SP), Some Pieces of Wood, Some Brown and Black Staining, Organic Solvent Odor Present | -- | 2159.0 | |
| 5 | 16 | W | 12 | 10- | Gray/Black Stained Fine SAND (SP) to approximately 10.2 ft, Gray Stained Fine to Coarse Sand, Fine Gravel and Brown Oily Sheen at 10.8 ft | -- | 3868.0 | Field analysis of VOCs and PCBs |
| 6 | 18 | W | 18 | | Gray Brown Stained, Fine SAND (SP), Grades into Fine to Coarse Sand from 11.5 to 12.5 ft, Black Stained Fine Sand at 12.8 ft, Solvent Odor and Sheen Present | -- | 5716.0 | Field analysis for VOCs |
| 7 | 22 | W | 12 | | Gray Brown Fine SAND (SP), Little Silt, Organic Odor Present | -- | 159.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **1/19/96** End **1/19/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **4 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB108**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.6**
Northing: **6764.6**
Easting: **5372.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------|---------------------|--------------|--------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 8 | 18 | W | 10 | | Brown Fine SAND (SP), Trace Silt, Musty Organic Odor | — | 189.0 | |
| | | | | | SILT (ML) | | | |
| 9 | 20 | W/M | 11 | | Brown Fine to Coarse SAND (SP) from 17.5 to 18.6 ft, Musty Odor Present | — | 2876.0 | |
| | | | | | | >4.0 | | |
| 10 | | M | | | Very Stiff, Gray CLAY (CL), Pushed Shelby Tube 18 in. Then Encountered Refusal on Stiff Clay | | | 6" sand blow-in in shelly tube |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB110**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.8**
 Northing: **6751.9**
 Easting: **5660.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-----------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag and Brown Fine Sand (FILL) | | | |
| 1 | 18 | M | 16 | | Black Fine SAND and Fine to Coarse GRAVEL (GP), Grades into Brown Fine Sand from 2 to 2.5 ft, then into Brown, Fine to Coarse Sand, Solvent Odor Present | -- | 9592.0 | PID over range |
| 2 | 22 | M | 14 | | Brown, Fine to Coarse SAND (SP), Little Fine to Coarse Gravel, Solvent Odor, Rust (Varnish-Like) Staining Present | -- | 3236.0 | PID over range Field analysis for PCBs |
| 3 | 22 | M/W | 7 | 5 | Brown, Fine to Coarse SAND (SP), Little Fine Gravel, Solvent Odor and Gray Brown Staining at 6 ft | -- | 3384.0 | PID over range |
| 4 | 20 | W | 12 | | Gray Brown Fine SAND (SP), Trace Silt and Medium to Coarse Sand, Solvent Odor and Sheen Present | -- | 9592.0 | Field analysis for VOCs |
| 5 | 20 | W | 10 | | Gray, Fine to Coarse SAND (SP), Trace Silt, Solvent Odor Present | -- | 8405.0 | Over range PID |
| 6 | 20 | W | 14 | | Gray Fine SAND (SP), Trace Silt and Coarse Sand, Musty Solvent Odor Present | -- | 6127.0 | |
| 7 | 18 | W | 7 | | Gray, Fine to Coarse SAND (SP), Trace Silt and Shell Fragments, Grades Back into Gray Fine Sand at 14 ft, Musty Solvent Odor Present | -- | 5908.0 | Over range PID |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start 1/22/96 End 1/22/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

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**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB110**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.8**
 Northing: **6751.9**
 Easting: **5660.5**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 8 | 18 | W | 16 | | Gray, Fine to Coarse SAND (SP), Trace Silt, Musty Solvent Odor Present (SP) | -- | 2961.0 | |
| 9 | 18 | W | 11 | | Gray, Fine to Coarse SAND (SP), Trace Fine Gravel, Musty Solvent Odor Present | -- | 5424.0 | |
| 10 | 20 | W | 21 | | Gray, Fine to Coarse SAND (SP), Trace Clay and Silt, Musty Solvent Odor Present | -- | 2019.0 | Blow-in |
| 11 | 20 | W | 12 | | Gray, Fine to Coarse SAND (SP), Trace Silt and Clay, Musty Odor | | | Blow-in |
| | | | | | Gray, Clayey SILT/Silty CLAY (ML/CL) | 2.5 | | |
| 12 | 22 | W | -- | | Gray Clayey SILT (ML) | - | | |
| | | | | 25 | End of Boring at 24.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB111**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.4**
 Northing: **6688.6**
 Easting: **5524.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| Nc. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) Over Black Fine Sand, Silt | | | |
| 1 | 20 | M | 12 | | Brown Fine SAND (SP), Trace Fine Gravel, Strong Solvent Odor Present | -- | 9182.0 | Field analysis for VOCs and PCBs |
| 2 | 20 | W | 14 | | Light Brown Fine SAND (SP), Solvent Odor Present | -- | 8618.0 | |
| 3 | 20 | W | 8 | 5 | Light Brown Fine SAND (SP), Trace to Little Fine to Coarse Sand from 6 to 7 ft, Strong Solvent Odor Present | -- | 5074.0 | |
| 4 | 18 | W | 11 | | Grades into Olive Brown Stained, Fine to Coarse SAND (SP), Very Strong Solvent Odor from 8 to 9 ft | -- | 8107.0 | Field analysis for VOCs and PCBs |
| 5 | 14 | W | 9 | 10 | Olive Gray Brown, Fine to Coarse SAND and GRAVEL (GP), (Possible Fill) Strong Solvent Odor Present | -- | 6945.0 | |
| 6 | 16 | W | 12 | | Black Stained, Fine to Coarse SAND and GRAVEL (GP) | -- | 1086.0 | |
| | | | | | Gray Stained Fine SAND (SP), Trace Medium to Coarse Sand, Strong Solvent Odor | | | |
| 7 | 16 | W | 14 | | Gray, Fine to Coarse SAND (SP), Trace Fine Gravel, Solvent Odor Present, Grades into Gray, Fine Sand at 14 ft | -- | 905.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 1/22/96 End 1/22/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB111**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.4**
Northing: **6688.6**
Easting: **5524.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 14 | | Gray Fine SAND (SP), Trace Medium to Coarse Sand, Solvent/Musty Odor Present | — | 726.0 | |
| 9 | 16 | W | 10 | | Gray Brown Fine SAND (SP), Some Clay and Silt Lenses; Silt Lenses 17.5 to 18.5 ft | — | 355.0 | |
| 10 | 20 | W | 20 | 20 | Gray, Silty CLAY to Clayey SILT (CL-ML) | > 4.0 | | |
| | | | | | End of Boring at 21.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB112**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **639.7**
 Northing: **6935.0**
 Easting: **5575.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|--------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Some Sand (FILL) | | | |
| 1 | 16 | M | 8 | | Gray Stained Fine SAND (SP), Grades into Dark Brown Stained, Fine Sand at 2 ft, Slight Musty Solvent Odor Present | -- | 5748.0 | |
| 2 | | | | | No Recovery - Drilling Feels Like Concrete Block/Large Gravel | -- | | Refusal at 1.0 ft |
| 3 | 16 | W | | 5 | Gray Stained, Fine to Coarse SAND (SP), Some Fine to Coarse Gravel, Purple Staining from 5.5 to 6.5 ft, Grades Back into Brown Fine Sand, Strong Solvent Odor Present | -- | 5409.0 | Field analysis for PCBs |
| 4 | | | | | No Recovery | -- | | No recovery, high PID readings in breathing zone |
| 5 | 20 | W | 4 | 10 | Gray Stained Fine SAND (SP), Grades to Black Stained, Fine to Coarse Sand and Fine Gravel; Brown-Stained, Oily, Petroleum Sheen, Fine to Coarse Sand and Fine Gravel from 10 to 10.6 ft, Grades Back into Brown Fine Sand, Strong Solvent Odor | -- | 8524.0 | Sheen, field analysis for VOCs and PCBs |
| 6 | 20 | W | 8 | | Stained, Fine to Coarse SAND to 11.5 ft, Grades into Gray, Fine to Coarse Sand and Fine Gravel, Little Silt, Trace Clay, Strong Solvent Odor | -- | 9564.0 | Field analysis for VOCs |
| 7 | 8 | W | 13 | | Brown, Fine to Coarse SAND (SP) to 13.5 ft; Grades into Gray Fine Sand, Some Medium to Coarse Sand and Fine to Coarse Gravel, Trace Shells | -- | 5624.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS
GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **1/22/96** End **1/22/96**
 Driller **E & F Chief GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **4 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

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**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB112**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **639.7**
 Northing: **6935.0**
 Easting: **5575.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 17 | | Gray-Brown Fine SAND (SP), Some Medium to Coarse Sand, Fine Gravel and Shell Fragments | -- | 4083.0 | |
| 9 | | W | | | Silt Lens at 18.2 to 18.5 ft, Some Clay | -- | | |
| 10 | 22 | W/M | | | | | | |
| | | | | 20 | Hard, Gray, Silty CLAY (CL/ML) | >4.5 | | |
| | | M | | | | | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB117**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.9**
Northing: **6929.2**
Easting: **5219.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 10 | M | 8 | | Brown Fine SAND (SP), Black-Stained Wood Chips in Tip of Spoon; Split-Spoon Refusal | -- | 3.0 | Refusal, wood railroad tie |
| 2 | 16 | M/W | 3 | | Black Stained Fine SAND (SP), Trace Silt and Organics (Roots), Creosote Solvent Like Odor | -- | 11.0 | Field analysis for PCBs |
| 3 | 16 | W | 5 | | Olive Gray Brown, Fine SAND (SP), Trace Medium to Coarse Sand, Musty Solvent Odor Present | -- | 13.0 | |
| 4 | 16 | W | 6 | | Olive Gray Brown, Fine to Coarse SAND (SP), Trace Medium to Coarse Sand, Musty Odor Present | -- | 17.0 | |
| 5 | 16 | W | 7 | | Dark Olive Gray Brown Fine SAND (SP), Grades into Dark Gray, Fine to Coarse at 12 to 13 ft, Musty Odor Present | -- | 9.0 | |
| 6 | 18 | W | 11 | | Gray, Fine to Coarse SAND (SP), Little Fine Gravel, Musty Odor | -- | 14.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 1/24/96 End 1/24/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB117**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.9**
 Northing: **6929.2**
 Easting: **5219.9**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | | | Gray Brown, Fine SAND (SP), Little to Some, Medium to Coarse Sand, Musty Odor Present | — | 238.0 | Field analysis for VOCs |
| 8 | 22 | W/M | | | | | | |
| | | | | | Hard, Gray Silty CLAY (CL-ML) | >4.5 | | |
| | | | | | SILT Lens (ML) 19.2 to 19.6 ft | 1.0 | | |
| | | | | 20 | | >4.0 | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB118**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **639.1**
 Northing: **6721.5**
 Easting: **5620.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown SAND and GRAVEL (FILL) | | | |
| 1 | 14 | M | 6 | | Orange Brown Stained, Fine to Coarse SAND (SP), Grades into Brown Fine Sand at 2 ft, Some Black Staining to 2.5 ft, Strong Solvent Odor Present | -- | 4012.0 | |
| 2 | 14 | M | 6 | | Brown, Fine to Coarse SAND (SP), Some Gray Olive Gray Staining from 4 to 4.8 ft, Strong Solvent Odor Present | -- | 4965.0 | Field analysis for VOCs |
| | 14 | M/W | 4 | | Brown, Fine to Coarse SAND and Fine GRAVEL (GP), Trace Silt, Some Brown Oily Staining from 7.5 to 7.7 ft, Strong Solvent Odor Present | -- | 5629.0 | Field analysis for VOCs and PCBs |
| 4 | 4 | W | 2 | | Loose, Brown, Fine to Coarse SAND and GRAVEL (GP), Strong Solvent Odor, Sheen Present | -- | 5753.0 | Poor recovery |
| 5 | 14 | W | 6 | | Gray, Fine to Coarse SAND and Fine GRAVEL (GP), Black Stained from 12 to 12.2 ft, Strong Solvent Odor, Slight Sheen | -- | 2297.0 | Field analysis for PCBs |
| 6 | 16 | W | 12 | | Grades into Gray Brown, Fine SAND (SP) at | -- | 891.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **1/24/96** End **1/24/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB118**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **639.1**
 Northing: **6721.5**
 Easting: **5620.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------|--------------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | 14.5 ft, Musty Solvent Odor Present | | | |
| 7 | 16 | W | 12 | | Grades into Gray Fine SAND (SP), Trace Medium to Coarse Sand at 16.5 ft, Musty Solvent Odor Present | -- | 382.0 | |
| 8 | 16 | W | 11 | | Gray, Fine to Coarse SAND (SP), Trace to Little Fine Gravel, Musty Solvent Odor Present | -- | 340.0 | |
| | | | | 20 | | | | |
| | 20 | W | 12 | | | -- | 230.0 | |
| 10 | 20 | W | 11 | | Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Little Silt, Trace Clay | -- | 624.0 | |
| | | | | 25 | Gray, Clayey SILT to Silty CLAY (CL-ML) | | | |
| 11 | 22 | W | 12 | | | 1.5 2.5 2.5 1.0 | | |
| | | | | | End of Boring at 27.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB119**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.8**
 Northing: **6708.8**
 Easting: **5567.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------|----------------------------------|--------------|-----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (q _a) (tsf) | PID (ppm) | Remarks |
| | | | | | Brown and Gray Slag and Sand and Gravel (FILL) | | | |
| 1 | 16 | M | 9 | | Light Brown, Fine SAND (SP), Little Medium to Coarse Sand, Solvent Odor Present | -- | 2682.0 | |
| 2 | 16 | M | 6 | | | -- | 3294.0 | Field analysis for VOCs |
| | | | | 5 | Grades into Gray Brown Fine SAND (SP) at 5 ft | | | |
| | 12 | M/W | 6 | | | -- | 3219.0 | Field analysis for VOCs and PCBs |
| | | | | | Grades into Brown, Fine to Coarse SAND (SP), Solvent Odor at 7 ft, Oil Stained | | | |
| 4 | 8 | W | 9 | | | -- | 705.0 | Sheen on spoon |
| | | | | 10 | Grades into Gray Stained, Fine to Coarse Sand and Gravel, Solvent Odor Present (FILL) | | | |
| 5 | 10 | W | 7 | | Brown Stained, Fine to Coarse SAND and GRAVEL (GP), Black Staining from 12 to 13 ft, Solvent Odor Present | -- | 570.0 | Sheen on spoon, field analysis for PCBs |
| 6 | 18 | W | | | | -- | | |
| | | | | 15 | Brown, Fine to Coarse SAND (SP), Little Fine Gravel, Grades into Brown, Fine Sand at 14.5 | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 1/25/96 End 1/25/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

MONTGOMERY WATSON



LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB119**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 638.8
Northing: 6708.8
Easting: 5567.4

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | ft, Solvent Odor Present | | | |
| 7 | 16 | W | 10 | | Gray Brown, Fine to Coarse SAND (SP), Trace Fine Gravel, Musty Solvent Odor, Trace Shells | -- | 610.0 | |
| 8 | 16 | W | 10 | | | -- | 678.0 | |
| | | | | 20 | | | | |
| | 22 | W | 22 | | Gray Brown, Fine to Coarse SAND, Little Fine Gravel, Musty Solvent Odor, Trace Shells (SP) Stiff, Gray Silty CLAY (CL-ML) | -- 1.75 2.5 | 315.0 | |
| 10 | 10 | M | 13 | | Gray Clayey SILT to Silty CLAY (CL-ML) | -- | | |
| | | | | 25 | End of Boring at 24.5 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB120**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.7**
 Northing: **6742.0**
 Easting: **5280.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 14 | M | 10 | | Dark Brown to Black Stained, Fine SAND (SP), Trace Organics, Roots, Fine Gravel, Pieces of Wood, Sweet Musty Odor Present | -- | 105.0 | |
| 2 | 16 | M | 6 | | Black, Fine SAND (SP), Trace Silt and Organics, Roots, Grades into Brown to Olive Brown Fine Sand, Shell Pieces Present, Sweet Musty Odor Present | -- | 332.0 | Field analysis for PCBs |
| 3 | 16 | W | 7 | | Olive Gray Brown Fine SAND (SP), Trace Medium to Coarse Sand, Little Black Staining, Musty Odor Present | -- | 98.0 | |
| 4 | 14 | W | 3 | | Olive Gray to Gray Fine SAND (SP), Trace Medium to Coarse Sand, Silt and Clay Lenses from 9.5 to 10.5 ft (< 1" Thick), Musty Odor Present | -- | 291.0 | |
| 5 | 16 | W | 9 | | Gray Stained, Fine to Coarse SAND (SP), Some Sheen and Brown Staining from 12 to 12.5 ft, Grades into Gray Brown Fine Sand, Musty Solvent Odor Present | -- | 1243.0 | Field analysis for VOCs and PCBs |
| 6 | 14 | W | 10 | | Gray, Fine to Coarse SAND (SP), Grades into Brown, Fine Sand, Silt Lens from 15 to 15.5 ft, Musty Odor Present | -- | 188.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **1/25/96** End **1/25/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB120**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.7**
 Northing: **6742.0**
 Easting: **5280.7**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 9 | | Brown Fine SAND (SP), Trace Fine to Coarse Sand, Slight Musty Odor Present | — | 241.0 | |
| 8 | 20 | W/M | 15 | | Brown, Fine to Coarse SAND (SP), Trace Fine Gravel, Musty Odor Present | — | 404.0 | |
| | | | | 20 | | | 16.0 | |
| 9 | | M | | | Hard, Gray Brown, Silty CLAY (CL-ML), Trace Fine to Coarse Sand | > 4.5 | | |
| | | | | | Very Stiff, Gray, Silty CLAY (CL-ML), Trace to Little, Fine to Coarse Sand | 4.25 | 16.0 | |
| | | | | | | 4.0 | | |
| | | | | | End of Boring at 22.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB121**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.1**
Northing: **6673.0**
Easting: **5476.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 14 | M | 6 | | Black Stained Fine SAND (SP), Some Silt, Trace Organics, Roots, Grades into Brown Fine Sand (SP) | -- | 419.0 | |
| 2 | 18 | M/W | 6 | | Brown Fine SAND (SP), Trace Medium to Coarse Sand, Solvent Odor Present | -- | 1467.0 | |
| | | | | 5 | Olive Brown/Gray Color Noted from 5 to 5.5 ft | | | |
| 3 | 12 | W | 8 | | Brown Fine SAND (SP), Trace Medium to Coarse Sand, Solvent Odor Present | -- | 1684.0 | Field analysis for VOCs and PCBs |
| 4 | 14 | W | 8 | | Gray Brown Stained Fine SAND (SP), Grades into Brown Fine to Coarse Sand and Gravel from 9.5 to 10 ft, then into Dark Gray Stained, Fine to Coarse Sand and Gravel, Solvent Odor Present | -- | 804.0 | Field analysis for PCBs |
| 5 | 18 | W | 6 | | Olive Gray/Brown, Fine to Coarse SAND (SP), Trace to Little Fine Gravel, Solvent Odor Present | -- | 2367.0 | Field analysis for VOCs |
| 6 | 20 | W | 8 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand, Trace Fine Gravel, Musty Solvent Odor Present (SP) Silt Lens from 13 to 13.2 ft | -- | 1413.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/25/96 End 1/25/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB121**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.1**
 Northing: **6673.0**
 Easting: **5476.0**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 8 | | Brown Fine SAND (SP), Musty Solvent Odor Present Silt Lens from 17 to 17.1 ft | -- | 1319.0 | |
| 8 | 16 | W | 12 | | Brown Fine SAND (SP), Musty Solvent Odor Present Silty CLAY (CL/ML) Lens from 19.5 to 19.8 ft | -- | 1201.0 | |
| 9 | 18 | W/M | | | Stiff, Gray, Clayey SILT to Silty CLAY (CL-ML), Little Fine to Coarse Sand and Fine Gravel | 2.5 2.75 | 2352.0 | |
| 10 | | | | | | -- | | |
| | | | | | End of Boring at 24.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB122**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.1**
 Northing: **6971.7**
 Easting: **5248.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Light Brown Fine SAND (SP), Some Gravel | | | |
| 1 | 14 | M | 8 | | Light Brown Fine SAND (SP), Grades to Dark Gray to Black Fine Sand, Trace Fine Gravel, Slight Solvent Odor Present | -- | 1600.0 | Field analysis for VOCs |
| 2 | 20 | W | 4 | | Dark Gray Stained Fine SAND (SP), Some Silt, Trace Medium to Coarse Sand, Trace Organics, Roots, Trace Fine to Coarse Gravel, Slight Musty Odor, Small Pieces of Wood | -- | 99.0 | |
| 3 | 16 | W | 3 | | Dark Brown to Black Stained Fine SAND (SP), Trace Organics (Roots), Trace Fine Gravel, Little Silt, Musty Oily Odor Present | -- | 75.0 | Field analysis for PCBs |
| 4 | 18 | W | 6 | | Gray Brown Fine SAND (SP), Musty Organic Odor Present | -- | 39.0 | |
| 5 | 22 | W | 7 | | Gray Fine SAND (SP), Little Silt, Musty Organic Odor Present | -- | | |
| 6 | 6 | W | 7 | | Grades into Gray, Fine to Coarse SAND and GRAVEL (GP), Musty Odor Present | -- | | Poor recovery |

WATER LEVEL OBSERVATIONS

While Drilling ft. Upon Completion of Drilling ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start **1/25/96** End **1/25/96**
 Driller **E & F** Chief **GH** Rig **CME 55**
 Logger **DAP** Editor **PMS**
 Drill Method **2 1/4" I.D. HSA**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB122**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.1**
 Northing: **6971.7**
 Easting: **5248.3**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 11 | | Gray, Fine to Coarse SAND (SP), Some Fine Gravel, Little Silt, Musty Odor Present | -- | | |
| 8 | 18 | M | 12 | | Hard, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | >4.5 | | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB125**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.4**
Northing: **6855.0**
Easting: **5622.8**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Black Fine Sand (FILL) (Corugated Rubber Hose; Old Water Line) | | | |
| 1 | 10 | M | 6 | | Dark Gray to Black Stained Fine SAND (SP), Trace Fine to Coarse Gravel, Solvent Odor | -- | 1207.0 | |
| 2 | 16 | W | 6 | | Olive Gray Brown to Brown, Fine to Coarse SAND (SP), Small Black Stained zone of Fine Gravel from 5.0 to 5.2 ft, Solvent Odor Present | -- | 2884.0 | Field analysis for VOCs |
| | 16 | W | 3 | | Gray Brown Stained Fine SAND (SP), Thin Black Stained Fine to Coarse Sand and Gravel, Oily Zone from 6.7 to 7.0 ft, Grades into Gray Stained, Fine to Coarse Sand and Gravel, Solvent Odor Present | -- | 2863.0 | Field analysis for VOCs and PCBs |
| 4 | 8 | W | 4 | | Black Stained, Fine to Coarse SAND and Fine GRAVEL (SP), Musty Solvent Odor Present | -- | 789.0 | Poor recovery Field analysis for PCBs |
| 5 | 12 | W | 7 | | Black Stained, Fine to Coarse SAND and Fine GRAVEL (SP) to 12.2 ft, Grades into Brown Fine Sand, Musty Solvent Odor Present | -- | 527.0 | |
| 6 | 22 | W | 8 | | Gray Brown, Fine to Coarse SAND (SP); Grades into Gray Brown Fine Sand at 14.5 ft, Musty Propane Like Odor Present | -- | | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 1/26/96 End 1/26/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB125**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.4**
 Northing: **6855.0**
 Easting: **5622.8**

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 7 | | Gray Brown Fine SAND (SP), Sweet Musty Odor Present | -- | | |
| 8 | 18 | W/M | 10 | | | | | |
| | | | | 20 | Grades into Gray Clayey SILT (CL-ML) at 19.0 ft, Small Sand Lense (< 1 in.) at 19.8 to 19.9 ft, then into Hard Gray Silty Clay, Trace Fine to Coarse Sand and Gravel | 2.5 > 4.5 | | |
| 9 | 12 | W/M | 12 | | Stiff, Gray, Clayey SILT to Silty CLAY (CL-ML) | 1.5 2.5 | | |
| | | | | 25 | End of Boring at 23 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB128**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **638.9**
 Northing: **6803.1**
 Easting: **5653.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Brown Fine Sand (FILL) | | | |
| 1 | 18 | M | 6 | | Dark Brown to Yellow Brown, Fine to Coarse SAND (SP), Fine Gravel, Solvent Odor Present | -- | 2267.0 | |
| 2 | 14 | M | 7 | | Brown, Fine to Coarse SAND (SP), Little Fine to Coarse Gravel, Solvent Odor Present | -- | 2914.0 | |
| | | | | 5 | | | | |
| | 16 | W | 3 | | Brown, Fine to Coarse SAND and Fine GRAVEL (SP), Brown Oil Stained Zone from 7.0 to 7.5 ft, Solvent Varnish-Like Odor Present | -- | 2334.0 | Sheen Field analysis for VOCs and PCBs |
| 4 | 14 | W | 4 | | Black and Brown, Oily Stained, Fine to Coarse SAND and Fine GRAVEL (SP), Solvent Oily Odor Present | -- | 2213.0 | Sheen Field analysis for VOCs and PCBs |
| | | | | 10 | | | | |
| 5 | 6 | W | 5 | | Black Stained, Fine to Coarse SAND and GRAVEL (SP), Solvent Odor Present | -- | 1364.0 | Poor Recovery |
| | | | | | | | | |
| 6 | 16 | W | 7 | | Grades into Brown Fine SAND (SP) at 14.0 ft, Sweet, Musty, Propane-Like Odor Present | -- | 187.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ☒ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 1/30/96 End 1/30/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB128**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **638.9**
 Northing: **6803.1**
 Easting: **5653.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 11 | | Trace Fine to Coarse Gravel, Thin Silt Seam from 17.5 to 17.7 ft | -- | 144.0 | |
| 8 | 20 | W/M | 11 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand | 4.0 | 108.0 | |
| | | | | 20 | Hard, Gray Silty CLAY (CL-ML) | | | |
| | 20 | W | 12 | | Gray Brown, Fine to Coarse SAND (SP), Musty Odor Present | -- | 101.0 | |
| 10 | 18 | W/M | 6 | | | | | |
| | | | | 25 | Stiff to Very Stiff, Gray, Silty CLAY (CL-ML) | 2.5 | | |
| 11 | 12 | M | 11 | | Stiff to Hard, Gray Brown, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | >4.5 | | |
| | | | | | End of Boring at 27.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB129**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **636.9**
Northing: **6712.4**
Easting: **5268.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 20 | M | 5 | | Black, Silty, Fine to Coarse SAND (SP), Trace Organics, Roots, Slight Musty Odor Present | -- | 13.0 | |
| 2 | 20 | M/W | 6 | | Dark Brown, Silty Fine SAND (SP), Trace Roots, Grades into Gray Fine Sand, Musty Odor Present | -- | 9.0 | |
| | 20 | W | 8 | | Gray Fine SAND (SP), Some Black Staining, Scattered Musty Odor | -- | 13.0 | Field analysis for PCBs |
| 4 | 12 | W | 7 | | Dark Gray, Fine to Coarse SAND (SP), Some Silt, Silt and Clay Zone from 9.5 to 10.0 ft, Musty Odor | -- | 24.0 | |
| 5 | 20 | W | 10 | | Gray, Fine to Coarse SAND and GRAVEL (SP), Thin Brown Stained Zone (Sheen Also) from 12.0 to 12.2 ft, Grades into Gray Fine Sand at 12.2 ft, Solvent Odor Present | -- | 926.0 | Field analysis for VOCs and PCBs |
| 6 | 18 | W | 10 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand, Gray Staining from 14 to 14.5 ft, then into Brown Fine Sand, Solvent Odor Present | -- | 155.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/30/96 End 1/30/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB129**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **636.9**
 Northing: **6712.4**
 Easting: **5268.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 10 | | Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine to Coarse Gravel, Musty Odor Present | -- | 217.0 | |
| 8 | 22 | W | 12 | | Hard, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Fine Gravel | >4.5 | 110.0 | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon
Location Griffith, Indiana

Boring No. **SB128**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **638.9**
Northing: **6803.1**
Easting: **5653.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag, Brown Fine Sand (FILL) | | | |
| 1 | 18 | M | 6 | | Dark Brown to Yellow Brown, Fine to Coarse SAND (SP), Fine Gravel, Solvent Odor Present | -- | 2267.0 | |
| 2 | 14 | M | 7 | | Brown, Fine to Coarse SAND (SP), Little Fine to Coarse Gravel, Solvent Odor Present | -- | 2914.0 | |
| 3 | 16 | W | 3 | | Brown, Fine to Coarse SAND and Fine GRAVEL (SP), Brown Oil Stained Zone from 7.0 to 7.5 ft, Solvent Varnish-Like Odor Present | -- | 2334.0 | Sheen Field analysis for VOCs and PCBs |
| 4 | 14 | W | 4 | | Black and Brown, Oily Stained, Fine to Coarse SAND and Fine GRAVEL (SP), Solvent Oily Odor Present | -- | 2213.0 | Sheen Field analysis for VOCs and PCBs |
| 5 | 6 | W | 5 | | Black Stained, Fine to Coarse SAND and GRAVEL (SP), Solvent Odor Present | -- | 1364.0 | Poor Recovery |
| 6 | 16 | W | 7 | | Grades into Brown Fine SAND (SP) at 14.0 ft, Sweet, Musty, Propane-Like Odor Present | -- | 187.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ft. Upon Completion of Drilling ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/30/96 End 1/30/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB128**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **638.9**
Northing: **6803.1**
Easting: **5653.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 11 | | Trace Fine to Coarse Gravel, Thin Silt Seam from 17.5 to 17.7 ft | -- | 144.0 | |
| 8 | 20 | W/M | 11 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand | 4.0 | 108.0 | |
| | | | | 20 | Hard, Gray Silty CLAY (CL-ML) | | | |
| 9 | 20 | W | 12 | | Gray Brown, Fine to Coarse SAND (SP), Musty Odor Present | -- | 101.0 | |
| 10 | 18 | W/M | 6 | | | | | |
| | | | | 25 | Stiff to Very Stiff, Gray, Silty CLAY (CL-ML) | 2.5 | | |
| 11 | 12 | M | 11 | | Stiff to Hard, Gray Brown, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | >4.5 | | |
| | | | | | End of Boring at 27.0 ft | | | |
| | | | | 30 | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB129**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **636.9**
Northing: **6712.4**
Easting: **5268.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 20 | M | 5 | | Black, Silty, Fine to Coarse SAND (SP), Trace Organics, Roots, Slight Musty Odor Present | -- | 13.0 | |
| 2 | 20 | M/W | 6 | | Dark Brown, Silty Fine SAND (SP), Trace Roots, Grades into Gray Fine Sand, Musty Odor Present | -- | 9.0 | |
| 3 | 20 | W | 8 | | Gray Fine SAND (SP), Some Black Staining, Scattered Musty Odor | -- | 13.0 | Field analysis for PCBs |
| 4 | 12 | W | 7 | | Dark Gray, Fine to Coarse SAND (SP), Some Silt, Silt and Clay Zone from 9.5 to 10.0 ft, Musty Odor | -- | 24.0 | |
| 5 | 20 | W | 10 | | Gray, Fine to Coarse SAND and GRAVEL (SP), Thin Brown Stained Zone (Sheen Also) from 12.0 to 12.2 ft, Grades into Gray Fine Sand at 12.2 ft, Solvent Odor Present | -- | 926.0 | Field analysis for VOCs and PCBs |
| 6 | 18 | W | 10 | | Gray Brown Fine SAND (SP), Little Medium to Coarse Sand, Gray Staining from 14 to 14.5 ft, then into Brown Fine Sand, Solvent Odor Present | -- | 155.0 | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/30/96 End 1/30/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB129**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **636.9**
 Northing: **6712.4**
 Easting: **5268.4**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 10 | | Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine to Coarse Gravel, Musty Odor Present | — | 217.0 | |
| 8 | 22 | W | 12 | | Hard, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Fine Gravel | >4.5 | 110.0 | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON****LOG OF TEST BORING**

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB130**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.9**
Northing: **6652.2**
Easting: **5448.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 18 | M | 5 | | Black Fine SAND (SP), Grades into Very Dark Brown Sandy Silt, Trace Organics, Epoxy-Like Odor Present | -- | 392.0 | |
| 2 | 18 | M | 4 | | Light Brown Fine SAND (SP), Epoxy-Like Odor | -- | 335.0 | |
| | | | | 5 | | | | |
| | 18 | W | 5 | | Light Brown Fine SAND (SP), Solvent-Like Odor Present, Very Slight Sheen from 6.5 to 7.0 ft | -- | 620.0 | Field analysis for VOCs and PCBs |
| 4 | 4 | W | 5 | | Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Musty Odor Present | -- | 388.0 | Field analysis for PCBs |
| | | | | 10 | | | | |
| 5 | 22 | W | 11 | | Olive Gray to Gray, Fine to Coarse SAND (SP), Trace Shell Fragments, Musty Odor Present | -- | 340.0 | |
| | | | | | | | | |
| 6 | 20 | W | 8 | | Olive Gray Fine SAND (SP), Little Medium to Coarse Sand and Fine to Coarse Gravel, Fine Sand at 15.0 to 15.5 ft, Musty Odor Present | -- | 870.0 | |
| | | | | 15 | | | | |

WATER LEVEL OBSERVATIONS

While Drilling ∇ ft. Upon Completion of Drilling ∇ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 1/30/96 End 1/30/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB130**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.9**
 Northing: **6652.2**
 Easting: **5448.6**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 20 | W | 15 | | Gray Brown Fine SAND (SP), Trace Medium to Coarse Sand and Fine to Coarse Gravel, Musty Solvent Odor Present | -- | 1018.0 | Field analysis for VOCs |
| 8 | 20 | W | 12 | | Gray, Fine to Coarse SAND (SP), Musty Solvent Odor Present | -- | | |
| 9 | | | | 20 | Stiff, Gray Clayey SILT to Silty CLAY (CL-ML) | -- | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB132**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.0**
 Northing: **6756.4**
 Easting: **5174.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 16 | M | 7 | | Brown Fine SAND (SP) Grades into Dark Brown to Black Fine Sand, Silt, Trace Organics, Sweet Musty Odor Present | -- | 28.0 | |
| 2 | 18 | M | 7 | | Dark Gray Brown to Gray Fine SAND (SP), Sweet Musty Odor | -- | 59.0 | |
| 3 | 16 | W | 6 | | Dark Gray Fine SAND (SP), Sweet Solvent-Like Odor Present | -- | 23.0 | |
| 4 | 14 | W | 6 | | Dark Gray Fine SAND (SP), Grades into a Black Stained Zone from 9.5 to 10.0 ft, Grades into Gray, Fine to Coarse Sand and Fine Gravel at 10.2 ft | -- | 27.0 | Field analysis for PCBs |
| 5 | 16 | W | 10 | | Dark Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Sweet Propane-Like Odor Present | -- | 103.0 | Field analysis for VOCs |
| 6 | 14 | W | 10 | | Gray, Fine to Coarse SAND and Fine GRAVEL (SP) to 14.5 ft, Grades into Gray Fine Sand, Silt Seam from 14.8 to 14.9 ft, Musty Odor Present | -- | 32.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☒ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 1/31/96 End 1/31/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB132**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.0**
 Northing: **6756.4**
 Easting: **5174.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|--------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 10 | | Gray Brown Fine SAND (SP), Musty Odor Present, Little Medium to Coarse Sand from 16.5 to 17.5 ft | -- | 37.0 | |
| 8 | | W | 15 | | | 4.5 | | |
| | | | | 20 | Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | | | |
| 9 | | | | | | | | |
| | | | | | End of Boring at 21.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB133**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.3**
 Northing: **6670.7**
 Easting: **5352.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 16 | M | 5 | | Brown Fine SAND (SP), Grades into Dark Brown to Black Stained Fine Sand from 1.5 to 2.5 ft, Then into Gray Brown Fine Sand, Solvent Odor Present, Trace Organics, Roots | -- | 221.0 | |
| 2 | 12 | W | 4 | | Gray Brown Fine SAND (SP), Solvent Epoxy-Like Odor Present | -- | 424.0 | |
| 3 | 16 | W | 6 | | Gray Brown Fine SAND (SP), Epoxy Resin-Like Odor, Some Black Staining Present Throughout, Thin Silt Seam from 7.0 to 7.2 ft | -- | 181.0 | Field analysis for PCBs |
| 4 | 14 | W | 7 | | Very Dark Brown to Black Stained Fine SAND (SP), Grades into Dark Gray Stained Fine Sand, Epoxy Odor Present | -- | 182.0 | |
| 5 | 18 | W | 11 | | Gray Brown Fine SAND (SP), Slight Sheen Present from 11.0 to 11.5 ft, Epoxy-Like Odor Present | -- | 306.0 | Field analysis for VOCs and PCBs |
| 6 | 16 | W | 13 | | Gray Brown Fine to Coarse SAND (SP), Grades into Fine Sand at 14.5 ft, Sweet Musty Odor Present | -- | 742.0 | |

WATER LEVEL OBSERVATIONS

Time After Drilling _____ ft. Upon Completion of Drilling _____ ft.
 Depth to Water _____
 Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 1/31/96 End 1/31/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 2 1/4" I.D. HSA

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB133**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.3**
Northing: **6670.7**
Easting: **5352.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 14 | W | 12 | | Gray Brown Fine SAND (SP), Little Silt at 17.0 ft, Sweet Musty Odor Present | -- | 1146.0 | Field analysis for VOCs |
| 8 | 18 | W/M | 12 | | Gray Brown, Fine to Coarse SAND (SP), Sweet Musty Propane-Like Odor Present | -- | 604.0 | |
| 9 | 16 | M | 16 | 20 | Very Stiff, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Fine Gravel | 4.0 | | |
| | | | | | End of Boring at 22.0 ft | 4.0 | | |
| | | | | 25 | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB134**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.7**
 Northing: **6667.5**
 Easting: **5402.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 20 | M | 12 | | Light Brown Fine SAND (SP) to 2.0 ft, Grades into Black Silt and Fine Sand, Organic Matter, Roots, Leaves, Solvent Odor Present | -- | 105.0 | |
| 2 | 20 | M | 8 | | Dark Olive Brown Fine SAND (SP), Some Pieces of Wood, Organic Matter, Roots, Leaves, Solvent Odor Present | -- | 123.0 | |
| 3 | 20 | W | 8 | 5 | Gray Stained, Fine SAND (SP), Grades into Black Stained Fine Sand, Then into Gray Brown Fine Sand, Solvent Odor Present | -- | 96.0 | Field analysis for PCBs |
| 4 | 20 | W | 7 | | Brown to Olive Gray Fine SAND (SP), Little Silt at 8.0 ft, Solvent Odor, Some Black Staining | -- | 92.0 | |
| 5 | 20 | W | 7 | | Gray Fine SAND (SP), Little Black Staining, Sweet Musty Odor Present | -- | 237.0 | |
| 6 | 22 | W | 9 | | Grades into Fine to Coarse SAND and Fine GRAVEL (SP), Sweet Musty Odor Present | -- | 654.0 | |
| 7 | 20 | W | 10 | | Gray Brown Fine SAND (SP), Some Silt, Trace Clay, Sweet Musty Odor Present | -- | 985.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 2/1/96 End 2/1/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB134**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.7**
 Northing: **6667.5**
 Easting: **5402.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|--------------------------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 12 | | Gray to Gray Brown, Fine to Medium SAND (SP), Trace Fine to Coarse Gravel, Musty Odor Present | -- | 1480.0 | |
| 9 | 20 | W | 7 | | Gray Brown, Fine to Coarse SAND (SP), Musty Solvent Odor Present | -- | 1819.0 | |
| 10 | 22 | W/M | 15 | 20 | Gray Brown, Fine to Coarse SAND (SP), Slight Sheen with Brown Oily Staining, Grades into Gray Silt to 20.0 ft, Fine to Coarse Sand, Clay and Silt to 20.5 (Positive Hydrophobic Dye Test) | 4.5 | 1609.0 | Solvent Odor Field Analysis for VOCs and PCBs |
| 11 | | M | | | Hard, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | | | |
| | | | | 25 | End of Boring at 23.0 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB135**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.1**
Northing: **6737.0**
Easting: **5230.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel and Gray Slag (FILL) | | | |
| 1 | 20 | M | 6 | | Light Gray Brown Fine SAND (SP), Sweet Musty Odor Present | -- | 49.0 | |
| 2 | 20 | M | 6 | | Black Stained Fine SAND (SP), Trace Organics, Sweet Musty Odor Present | -- | 66.0 | |
| 3 | 22 | W | | 5 | Black Stained Fine SAND (SP) from 6.0 to 7.0 ft, Musty Solvent Odor Present | -- | 70.0 | Field analysis for VOCs and PCBs |
| 4 | 20 | W | 6 | | Black Stained to Gray Fine SAND (SP), Musty Solvent Odor Present | -- | 75.0 | Field analysis for PCBs |
| 5 | 18 | W | 12 | 10 | Dark Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Trace Shells, Musty Odor Present | -- | 288.0 | Field analysis for VOCs |
| 6 | 16 | W | 14 | | Gray Brown, Fine to Coarse SAND and Fine GRAVEL (SP), Sweet Musty Odor Present, Grades into Gray Brown Fine Sand at 12.2 ft | -- | 118.0 | |
| 7 | 16 | W | 8 | 15 | Gray Brown, Fine to Coarse SAND and GRAVEL (SP), Grades into Gray Brown Fine Sand, Little Clay at 14.2 to 14.5 ft | -- | 170.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 2/1/96 End 2/1/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB135**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.1**
 Northing: **6737.0**
 Easting: **5230.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 20 | W | 10 | | Gray Brown, Fine to Coarse SAND (SP) to 15.5 ft, Grades into Gray Brown Fine Sand, Musty Propane Odor Present | -- | 159.0 | |
| 9 | 20 | W/M | 10 | | Gray Brown Fine SAND (SP), Grades into Dark Brown Sand at 18.0 ft, with Clay and Silt Lenses into Gray silty Clay at 18.5 ft | -- | 168.0 | |
| 10 | 16 | M | 14 | | Hard, Gray, Silty CLAY (CL-ML), Trace Fine to Coarse Sand and Gravel | > 4.5 | | |
| | | | | 20 | | > 4.5 | | |
| | | | | | End of Boring at 20.5 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB137**
 Job No. **4077.0075**
 Sheet **1 of 2**
 Surface Elevation **637.6**
 Northing: **6985.7**
 Easting: **5225.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 12 | M | 4 | | Light Brown, Silty Fine SAND (SM) | -- | 54.0 | |
| 2 | 18 | M/W | 8 | | Dark Gray/Brown Fine Silty SAND (SP) | -- | 10.0 | |
| | 20 | W | 8 | | Dark Gray Stained Silty, Fine to Medium SAND (SP) | -- | 12.0 | Field analysis for PCBs |
| 4 | 12 | W | 9 | | Dark Brown/Black Stained, Silty Fine to Coarse SAND (SP) 1 in. Oily Clay Layer at 6.5 ft | -- | 64.0 | Field analysis for PCBs |
| 5 | 12 | W | 10 | | Gray, Fine to Coarse SAND and Fine GRAVEL (GP) | -- | 32.0 | |
| 6 | 20 | W | 28 | | Gray Silty Fine To Medium SAND (SM) | -- | 5.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ft. Upon Completion of Drilling ft.
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

GENERAL NOTES

Start 2/1/96 End 2/1/96
 Driller E & F Chief GH Rig CME 55
 Logger DAP Editor PMS
 Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB137**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.6**
Northing: **6985.7**
Easting: **5225.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W/M | 21 | | Gray Silty CLAY (CL-ML) | -- | 237.0 | |
| 8 | 18 | M | 25 | | | -- | 2.0 | |
| | | | | 20 | | | | |
| | | | | | End of Boring at 20.5 ft Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON****LOG OF TEST BORING**

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB138**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.6**
Northing: **6636.5**
Easting: **5397.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 18 | M | 7 | | Black/Dark Brown, Silty, Fine SAND (SM), Some Trace Organics, Solvent Odor Present | -- | 227.0 | |
| 2 | 20 | M/W | 8 | | | -- | 519.0 | Field analysis for VOCs |
| 3 | 18 | W | 4 | | Black Stained, Silty, Fine to Coarse SAND (SM) Dark Gray, Silty, Fine to Medium SAND (SM) | -- | 388.0 | |
| 4 | 14 | W | 25 | | | -- | 216.0 | |
| 5 | 18 | W | 18 | | | -- | 705.0 | |
| 6 | 18 | W | 24 | | | -- | 748.0 | |

WATER LEVEL OBSERVATIONS

While Drilling _____ ft. Upon Completion of Drilling ▼ _____ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 2/1/96 End 2/1/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 4 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
 Location **Griffith, Indiana**

Boring No. **SB138**
 Job No. **4077.0075**
 Sheet **2 of 2**
 Surface Elevation **637.6**
 Northing: **6636.5**
 Easting: **5397.5**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------------|---------------------|--------------|----------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 12 | W | 24 | | Gray, Silty, Fine to Coarse SAND (SM) | -- | 818.0 | |
| 8 | 24 | W/M | 20 | | Brown Staining Present Hydrophobic Dye Test Postive | -- | 1538.0 | Field analysis for PCBs |
| | | | | 20 | Gray, Silty CLAY (CL-ML) | | | |
| 9 | 12 | M | 17 | | | -- | 1496.0 | |
| | | | | | End of Boring at 22.5 ft | | | |
| | | | | 25 | Grading to Gray Silty Fine to Coarse SAND at 9.5 ft (SP) | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 30 | | | | |

MONTGOMERY WATSON



LOG OF TEST BORING

Project **American Chemical Service, Inc.**
Still Bottoms/Treatment Lagoon
Location **Griffith, Indiana**

Boring No. **SB143**
Job No. **4077.0075**
Sheet **1 of 2**
Surface Elevation **637.6**
Northing: **7078.6**
Easting: **5430.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qs) (tsf) | PID (ppm) | Remarks |
| | | | | | Gray Slag and Gravel (FILL) | | | |
| 1 | 14 | M | 3 | | Orange Brown to Brown Fine SAND (SP) | -- | 5.0 | |
| 2 | 20 | M | 2 | | Orange Brown Fine SAND (SP), Grades into Black Stained Fine Sand, Trace Piece of Wood, Organics, Roots, Very Slight Sulfur Odor Present | -- | 19.0 | |
| 3 | 20 | W | 1 | | Black Stained Fine SAND (SP) to 7.2 ft Grades into Gray and Brown Fine Sand, Little Silt, Solvent Odor Present at 7.2 ft | -- | 1052.0 | Field analysis for VOCs and PCBs |
| 4 | 14 | W | 6 | | Dark Gray, Fine to Coarse SAND (SP), Silt Lense from 9.5 to 9.7 ft, Then into Black Stained, Fine to Coarse Sand and Gravel at 9 ft, Sheen and Solvent Odor Present | -- | 994.0 | Field analysis for VOCs and PCBs |
| 5 | 20 | W | 7 | | Dark Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Becomes Light Gray at 12.2 ft, Slight Solvent Odor Present | -- | 21.0 | |
| 6 | 16 | W | 5 | | Dark Gray, Fine to Coarse SAND and Fine GRAVEL (SP), Becomes More Fine Sand at 14.8 to 15.5 ft, Musty Odor Present | -- | 7.0 | |

WATER LEVEL OBSERVATIONS

While Drilling ☐ ft. Upon Completion of Drilling ☒ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

GENERAL NOTES

Start 2/6/96 End 2/6/96
Driller E & F Chief GH Rig CME 55
Logger DAP Editor PMS
Drill Method 2 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project **American Chemical Service, Inc.
Still Bottoms/Treatment Lagoon**
Location **Griffith, Indiana**

Boring No. **SB143**
Job No. **4077.0075**
Sheet **2 of 2**
Surface Elevation **637.6**
Northing: **7078.6**
Easting: **5430.1**

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 16 | W | 4 | | Dark Gray, Fine to Coarse SAND (SP), Grades into Gray, Silty Fine Sand at 17.0 ft, Slight Musty Odor, Silt Seam at 17.5 ft to 17.7 ft | -- | 16.0 | |
| 8 | 22 | W/M | 7 | | Gray, Fine to Coarse SAND (SP), Trace Silt and Clay, Slight Musty Odor Present | | | |
| | | | | 20 | Very Stiff to Hard, Gray Silty CLAY (CL-ML), Trace Fine to Coarse Sand | 4.0-4.5 | | |
| 9 | 12 | M | | | Hard, Gray Brown Silty CLAY (CL-ML) | >4.5 | | |
| | | | | | End of Boring at 22.0 ft | | | |
| | | | | | Borehole Backfilled with Bentonite Cement Grout. Topped with 6 inches of Gravel. | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB217**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 639.5
Northing: 6444.1
Easting: 5602.8

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Gravel/Soil FILL | | | |
| 1 | 18 | M | 14 | | Light Brown/Rust, Silty, Fine to Medium SAND (SM) | | 0.0 | |
| 2 | 18 | M | 17 | | | | 49.0 | |
| 3 | 18 | M/W | 18 | 5 | Trace Coarse Sand | | 50.0 | |
| 4 | 18 | W | 30 | | Dark Gray, Silty, Fine to Medium SAND, Brown Staining from 7.0 to 7.5 ft Trace to Little, Fine to Coarse GRAVEL and SAND at 8.5 to 8.7 ft | | 800.0 | Field analysis for VOCs and PCBs |
| 5 | 18 | W | 24 | | Gray, Silty, Fine to Medium SAND, Trace Fine to Coarse Gravel (SM) | | 650.0 | |
| 6 | 18 | W | 39 | | Trace Elongated Cobbles | | 1034.0 | |
| 7 | 20 | W | 21 | | | | 2680.0 | Field analysis for VOCs and PCBs |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ 6.5 ft. Upon Completion of Drilling ☐ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/29/96 End 1/29/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB217**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 639.5
Northing: 6444.1
Easting: 5602.8

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 8 | 18 | W | 40 | | <p>Trace Coarse SAND and Fine to Coarse GRAVEL (SM)</p> <p>1 in. Thin Silt Seam at 18.0 ft</p> <p>2" Clay Lense at 20.5 ft</p> <p>Gray, Silty CLAY (CL-ML)</p> <p>End of Boring at 25.0 ft</p> <p>Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips.</p> | | 684.0 | |
| 9 | 18 | W | 37 | | | | 118.0 | |
| 10 | 20 | W/M | 38 | | | | 5.0 | |
| 11 | 18 | W/M | 35 | | | | 2.0 | |
| 12 | 18 | M | 30 | | | | 0.0 | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB218**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 634.7
Northing: 6517.4
Easting: 5411.0

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | Light Brown, Silty, Fine to Medium SAND (SM) | | | |
| 1 | 18 | M/W | 6 | | | | 291.0 | Field analysis for PCBs |
| | | | | | Dark Gray, Silty, Fine to Medium SAND (SM), Trace Coarse Sand and Fine Gravel | | | |
| 2 | 18 | W | 9 | | | | 2358.0 | Field analysis for VOCs |
| | | | | | | | | |
| 3 | 12 | W | 10 | | Trace Shell Fragments Present | | 415.0 | |
| | | | | | | | | |
| 4 | 18 | W | 13 | | | | 3662.0 | Field analysis for VOCs |
| | | | | | | | | |
| 5 | 18 | W | 12 | | | | 200.0 | |
| | | | | | | | | |
| 6 | 18 | W | 15 | | | | 118.0 | |
| | | | | | | | | |
| | | | | | 1 in. Thin SILT Seam at 14.5 ft | | | |

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ∇ 2.5 ft. Upon Completion of Drilling ∇ ft.
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start 1/29/96 End 1/29/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

Boring No. **SB218**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 634.7
Northing: 6517.4
Easting: 5411.0

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 7 | 18 | W | 12 | | Gray Clayey SILT (ML) | 3.0 | 5.0 | |
| | | | | | | 2.5 | | |
| | | | | | End of Boring at 18.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 20 | | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

**MONTGOMERY
WATSON**

LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB219**
Job No. 4077.0075
Sheet 1 of 2
Surface Elevation 633.0
Northing: 6606.9
Easting: 5299.9

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|-----------------------------------------------------------------------------------------|---------------------|--------------|-------------------------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| 1 | 18 | W | 10 | 1 | Dark Brown, Silty, Fine to Medium SAND (SM) | | | |
| | | | | 2.5 | Gray to Dark Gray, Silty, Fine to Medium SAND (SM), Trace Black Discoloration at 2.5 ft | | 225.0 | Field analysis for PCBs |
| 2 | 18 | W | 11 | 5 | | | 503.0 | Field analysis for VOCs |
| 3 | 12 | W | 13 | 10 | Trace Clay Present | | 291.0 | |
| 4 | 18 | W | 16 | 15 | | | 388.0 | Field analysis for VOCs |
| 5 | 18 | W | 16 | | 1 in. SILT Seam at 12.0 ft | | 210.0 | |
| | | | | | Some Fine to Coarse SAND from 12.5 to 12.6 ft | | | |
| 6 | 20 | W/M | 18 | | Gray Silty CLAY (CL-ML) | 4.0 | 55.0 | |

WATER LEVEL OBSERVATIONS

Time After Drilling _____
Depth to Water _____
Depth to Cave in _____
Pile Drilling 1.5 ft. Upon Completion of Drilling _____ ft.

GENERAL NOTES

Start 1/30/96 End 1/30/96
Driller E & F Chief JE Rig CME
Logger PMS Editor DAP 850
Drill Method 3 1/4" I.D. HSA

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

**MONTGOMERY
WATSON**



LOG OF TEST BORING

Project American Chemical Service, Inc.
Off-Site Containment Area
Location Griffith, Indiana

Boring No. **SB219**
Job No. 4077.0075
Sheet 2 of 2
Surface Elevation 633.0
Northing: 6606.9
Easting: 5299.9

2100 Corporate Drive, Addison, Illinois 60101, TEL. (708) 691-5000

| SAMPLE | | | | | VISUAL CLASSIFICATION and Remarks | SOIL PROPERTIES | | |
|--------|---------------|---------------|------------|----------------|---------------------------------------------------------------------------------------------|---------------------|--------------|---------|
| No. | Rec. (in.) | Mois- ture | N Value | Depth (ft.) | | qu (qa) (tsf) | PID (ppm) | Remarks |
| | | | | | End of Boring at 16.0 ft | | | |
| | | | | | Abandoned Borehole with Bentonite Cement Grout. Topped at the Surface with Bentonite Chips. | | | |
| | | | | 20 | | | | |
| | | | | 25 | | | | |
| | | | | 30 | | | | |

2



C

**FIELD PCB RESULTS
(OHMICRON ENVIRONMENTAL DIAGNOSTICS
RAPID ASSAY SOIL TEST)**

Run 1

Date: 19-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 20:52 | SB103 | 1 | 1 - 3 | 15.1 | Y |
| 20:52 | SB104 | 2 | 18.5 - 20.5 | ND | |
| 20:52 | SB106 | 3 | 8.5 - 10.5 | 39 | Y |
| 20:52 | SB202A | 4 | 13.5 - 15.5 | ND | |
| 20:52 | SB202A | 5 | 16 - 18 | ND | |
| 20:52 | SB103 | 6 | 18.5 - 20.5 | ND | |
| 20:52 | SB105 | 7 | 18.5 - 20.5 | ND | |
| 20:52 | SB102 | 8 | 18.5 - 20.5 | ND | |
| 20:52 | SB101 | 9 | 3.5 - 5.5 | 30.4 | Y |
| 20:52 | SB102 | 10 | 3.5 - 5.5 | ND | |
| 20:52 | SB101 | 11 | 1 - 3 | 22.1 | Y |
| 20:52 | SB204 | 12 | 16 - 18 | ND | |
| 20:52 | SB107 | 13 | 11 - 13 | ND | |
| 20:52 | SB107 | 14 | 6 - 8 | 21.1 | Y |
| 20:52 | SB204 | 15 | 13.5 - 15.5 | ND | |
| 20:52 | SB105 | 16 | 8.5 - 10.5 | 3.5 | |
| 20:52 | SB203 | 17 | 16 - 18 | ND | |
| 20:52 | SB203 | 18 | 13.5 - 15.5 | 1.1 | |
| 20:52 | SB106 | 19 | 18.5 - 20.5 | 1.8 | |
| 20:52 | Proficiency A | 20 | NA | 1.55 (ppb) | |
| 20:52 | Proficiency B | 21 | NA | 2.29 (ppb) | |
| 20:52 | Proficiency C | 22 | NA | 4.22 (ppb) | |

Run 2

Date: 23-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 17:21 | SB206 | 1 | 5 - 7 | ND | |
| 17:21 | SB206 | 2 | 7 - 9 | ND | |
| 17:21 | SB207 | 3 | 13.5 - 15.5 | ND | |
| 17:21 | SB207 | 4 | 16 - 18 | ND | |
| 17:21 | SB207 | 5 | 21 - 23 | ND | |
| 17:21 | SB108 | 6 | 3 - 5 | >50 | Y |
| 17:21 | SB108 | 7 | 9 - 11 | 3.5 | |
| 17:21 | SB109 | 8 | 13 - 15 | ND | |
| 17:21 | Proficiency A | 9 | NA | 0.86 (ppb) | |
| 17:21 | Proficiency B | 10 | NA | 2.31 (ppb) | |
| 17:21 | Proficiency C | 11 | NA | 4.55 (ppb) | |

Run 3

Date: 24-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 14:00 | SB110 | 1 | 3 - 5 | ND | |
| 14:00 | SB111 | 2 | 1 - 3 | 1.5 | |
| 14:00 | SB111 | 3 | 7 - 9 | 5 | |
| 14:00 | SB112 | 4 | 5 - 7 | >50 | Y |
| 14:00 | SB112 | 5 | 9 - 11 | 38.2 | Y |
| 14:00 | SB113 | 6 | 7 - 9 | 17.3 | Y |
| 14:00 | SB113 | 7 | 9 - 11 | ND | |
| 14:00 | SB114 | 8 | 3.5 - 5.5 | 1.9 | |
| 14:00 | SB114 | 9 | 8.5 - 10.5 | 1.4 | |
| 14:00 | Proficiency A | 10 | NA | 0.76 (ppb) | |
| 14:00 | Proficiency B | 11 | NA | 1.80 (ppb) | |
| 14:00 | Proficiency C | 12 | NA | 3.84 (ppb) | |

Run 4

Date: 24-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 18:07 | SB208 | 1 | 11-13 | 1.2 | |
| 18:07 | SB208 | 2 | 23.5 - 25.5 | ND | |
| 18:07 | SB209 | 3 | 16-18 | ND | |
| 18:07 | SB209 | 4 | 18.5-20.5 | ND | |
| 18:07 | SB210 | 5 | 16-18 | ND | |
| 18:07 | SB210 | 6 | 18.5-20.5 | ND | |
| 18:07 | SB115 | 7 | 3.5-5.5 | ND | |
| 18:07 | SB115 | 8 | 6-8 | ND | |
| 18:07 | Proficiency A | 9 | NA | 0.68 (ppb) | |
| 18:07 | Proficiency B | 10 | NA | 1.81 (ppb) | |
| 18:07 | Proficiency C | 11 | NA | 4.49 (ppb) | |

Run 5

Date: 25-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 12:26 | SB116 | 1 | 3.5 - 5.5 | ND | |
| 12:26 | SB116 | 2 | 6 - 8 | 1.5 | |
| 12:26 | SB117 | 3 | 3.5 - 5.5 | ND | |
| 12:26 | Proficiency A | 4 | NA | 0.65 (ppb) | |
| 12:26 | Proficiency B | 5 | NA | 1.89 (ppb) | |
| 12:26 | Proficiency C | 6 | NA | 4.11 (ppb) | |

Run 6

Date: 25-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 17:45 | SB118 | 1 | 6 - 8 | 4.2 | |
| 17:45 | SB118 | 2 | 11 - 13 | ND | |
| 17:45 | SB119 | 3 | 6 - 8 | 17.9 | Y |
| 17:45 | SB119 | 4 | 11 - 13 | ND | |
| 17:45 | SB205A | 5 | 8.5 - 10.5 | ND | |
| 17:45 | SB205A | 6 | 23.5 - 25.5 | ND | |
| 17:45 | SB211 | 7 | 8.5 - 10.5 | ND | |
| 17:45 | SB211 | 8 | 18.5 - 20.5 | ND | |
| 17:45 | SB120 | 9 | 3.5 - 5.5 | >50 | Y |
| 17:45 | SB120 | 10 | 11 - 13 | 1.5 | |
| 17:45 | Proficiency A | 11 | NA | NR | |
| 17:45 | Proficiency B | 12 | NA | NR | |
| 17:45 | Proficiency C | 13 | NA | NR | |

Run 7

Date: 26-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 12:26 | SB121 | 1 | 6 - 8 | 6.5 | |
| 12:26 | SB121 | 2 | 8.5 - 10.5 | ND | |
| 12:26 | SB122 | 3 | 6 - 8 | 15.6 | Y |
| 12:26 | SB212 | 4 | 19 - 21 | ND | |
| 12:26 | SB213 | 5 | 23.5 - 25.5 | ND | |
| 12:26 | Proficiency A | 6 | NA | 0.53 (ppb) | |
| 12:26 | Proficiency B | 7 | NA | 1.79 (ppb) | |
| 12:26 | Proficiency C | 8 | NA | 4.58 (ppb) | |

Run 8

Date: 29-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 16:55 | SB123 | 1 | 3.5 - 5.5 | ND | |
| 16:55 | SB123 | 2 | 6 - 8 | ND | |
| 16:55 | SB124 | 3 | 6 - 8 | ND | |
| 16:55 | SB124 | 4 | 8.5 - 10.5 | 5.2 | |
| 16:55 | SB125 | 5 | 6 - 8 | 36.5 | Y |
| 16:55 | SB125 | 6 | 8.5 - 10.5 | ND | |
| 16:55 | SB214 | 7 | 13.5 - 15.5 | 10.6 | Y |
| 16:55 | SB214 | 8 | 18.5 - 20.5 | ND | |
| 16:55 | SB215 | 9 | 17 - 19 | ND | |
| 16:55 | SB215 | 10 | 19 - 21 | ND | |
| 16:55 | Proficiency A | 11 | NA | 0.57 (ppb) | |
| 16:55 | Proficiency B | 12 | NA | 1.73 (ppb) | |
| 16:55 | Proficiency C | 13 | NA | 4.60 (ppb) | |

Run 9

Date: 30-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 13:30 | SB126 | 1 | 11 - 13 | 7.6 | |
| 13:30 | SB216 | 2 | 13.5 - 15.5 | ND | |
| 13:30 | SB217 | 3 | 7 - 9 | ND | |
| 13:30 | SB217 | 4 | 13 - 15 | ND | |
| 13:30 | SB127 | 5 | 6 - 8 | 8.5 | |
| 13:30 | SB127 | 6 | 8.5 - 10.5 | ND | |
| 13:30 | Proficiency A | 7 | NA | 0.31 (ppb) | |
| 13:30 | Proficiency B | 8 | NA | 1.82 (ppb) | |
| 13:30 | Proficiency C | 9 | NA | 4.08 (ppb) | |

Run 10

Date: 30-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 18:43 | SB128 | 1 | 6 - 8 | 4.3 | |
| 18:43 | SB128 | 2 | 8.5 - 10.5 | ND | |
| 18:43 | SB218 | 3 | 1 - 3 | ND | |
| 18:43 | SB219 | 4 | 1 - 3 | ND | |
| 18:43 | SB129 | 5 | 6 - 8 | ND | |
| 18:43 | SB129 | 6 | 11 - 13 | 4 | |
| 18:43 | Proficiency A | 7 | NA | 0.50 (ppb) | |
| 18:43 | Proficiency B | 8 | NA | 1.71 (ppb) | |
| 18:43 | Proficiency C | 9 | NA | 3.63 (ppb) | |

Run 11

Date: 31-Jan-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 18:13 | SB130 | 1 | 6 - 8 | ND | |
| 18:13 | SB130 | 2 | 8.5 - 10.5 | ND | |
| 18:13 | SB131 | 3 | 6 - 8 | ND | |
| 18:13 | SB132 | 4 | 8.5 - 10.5 | ND | |
| 18:13 | SB220 | 5 | 8.5 - 10.5 | ND | |
| 18:13 | SB220 | 6 | 11 - 13 | ND | |
| 18:13 | Proficiency A | 7 | NA | 0.37 (ppb) | |
| 18:13 | Proficiency B | 8 | NA | 1.38 (ppb) | |
| 18:13 | Proficiency C | 9 | NA | 3.52 (ppb) | |

Run 12

Date: 1-Feb-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 15:23 | SB133 | 1 | 6 - 8 | ND | |
| 15:23 | SB133 | 2 | 11 - 13 | 1.2 | |
| 15:23 | SB221 | 3 | 9 - 11 | ND | |
| 15:23 | SB221 | 4 | 11 - 13 | ND | |
| 15:23 | SB222 | 5 | 13.5 - 15.5 | ND | |
| 15:23 | SB134 | 6 | 5 - 7 | ND | |
| 15:23 | SB134 | 7 | 19-21 | 19.3 | Y |
| 15:23 | Proficiency A | 8 | NA | 0.67 (ppb) | |
| 15:23 | Proficiency B | 9 | NA | 2.10 (ppb) | |
| 15:23 | Proficiency C | 10 | NA | 4.37 (ppb) | |

Run 13

Date: 1-Feb-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 19:04 | SB135 | 1 | 5 - 7 | 23.8 | Y |
| 19:04 | SB135 | 2 | 7 - 9 | ND | |
| 19:04 | SB137 | 3 | 6 - 8 | 20 | Y |
| 19:04 | SB137 | 4 | 8.5 - 10.5 | ND | |
| 19:04 | SB136 | 5 | 5 - 7 | ND | |
| 19:04 | Proficiency A | 6 | NA | 0.58 (ppb) | |
| 19:04 | Proficiency B | 7 | NA | 1.82 (ppb) | |
| 19:04 | Proficiency C | 8 | NA | 3.82 (ppb) | |

Run 14

Date: 8-Feb-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>≥10</u> |
|---------------|----------------------|-----------------|--------------|-------------|------------|
| 19:32 | SB138 | 1 | 18.5 - 20.5 | 26.8 | Y |
| 19:32 | SB139 | 2 | 6 - 8 | 2.8 | |
| 19:32 | SB140 | 3 | 8.5 - 10.5 | ND | |
| 19:32 | SB141 | 4 | 6 - 8 | ND | |
| 19:32 | SB141 | 5 | 8.5 - 10.5 | 1.5 | |
| 19:32 | SB142 | 6 | 6 - 8 | ND | |
| 19:32 | SB142 | 7 | 8.5 - 10.5 | ND | |
| 19:32 | SB143 | 8 | 6 - 8 | 13.9 | Y |
| 19:32 | SB143 | 9 | 8.5 - 10.5 | 16.4 | Y |
| 19:32 | SB144 | 10 | 8.5 - 10.5 | 8.3 | |
| 19:32 | SB144 | 11 | 11 - 13 | 7.4 | |
| 19:32 | Proficiency A | 12 | NA | 1.13 (ppb) | |
| 19:32 | Proficiency B | 13 | NA | 2.17 (ppb) | |
| 19:32 | Proficiency C | 14 | NA | 3.57 (ppb) | |

Run 15

Date: 13-Feb-96

| <u>Run ID</u> | <u>Sample Number</u> | <u>Sample #</u> | <u>Depth</u> | <u>PCBs</u> | <u>>10</u> |
|---------------|----------------------|-----------------|--------------|-------------|---------------|
| 19:56 | SB149 | 1 | 8.5 - 10.5 | 10.1 | Y |
| 19:56 | SB149 | 2 | 16 - 18 | 14.4 | Y |
| 19:56 | SB223 | 3 | 18.5 - 20.5 | 7.3 | |
| 19:56 | SB150 | 4 | 6 - 8 | >50 | Y |
| 19:56 | SB151 | 5 | 5 - 7 | 14.4 | Y |
| 19:56 | SB151 | 6 | 9 - 11 | 13.9 | Y |
| 19:56 | SB152 | 7 | 7 - 9 | 15 | Y |
| 19:56 | SB152 | 8 | 9 - 11 | 33 | Y |
| 19:56 | Proficiency A | 9 | NA | 0.67 (ppb) | |
| 19:56 | Proficiency B | 10 | NA | 2.25 (ppb) | |
| 19:56 | Proficiency C | 11 | NA | 4.70 (ppb) | |

Notes:

The notes provided below refer to the tables for PCB test kit Runs 1 through 15

PCB Sample results are reported in parts per million (ppm)

Proficiency sample results are reported in parts per billion (ppb)

Run ID - Identifies the time of day sample analysis run was complete

Sample Number - Soil boring number or Proficiency samples A, B or C

Sample # - The location (or order) in the run in which the sample was analyzed

Depth - Depth below ground surface sample was collected

Results >10 - Refers to PCB results greater than or equal to waste criteria (10 ppm)
as defined in the ROD, Y (Yes)

NA - Not Applicable to Proficiency Samples

Proficiency samples were overlooked on Run 6, therefore no results (NR) were recorded

Proficiency Samples

| <u>Sample</u> | <u>Range (ppb)</u> | <u>Mean</u> |
|---------------|--------------------|-------------|
| A | 0.33-0.68 | 0.50 |
| B | 1.28 - 2.13 | 1.70 |
| C | 3.20 - 4.80 | 4.00 |

END
01-19-96

***** OHMICRON *****

Please Wait 30 Minutes
-19-96 20:51:31

01-19-96 20:52:38

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : M. PAULI
LOT # :
EXP DATE :

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.659
Intercept = 0.227
Corr (r) = 0.9968

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.190 |
| 0.00 | 0.136 |
| 1.61 | -0.790 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-------|--------|
| | Diff | | %Diff |
| 0.00 | 1.402 | | |
| | 1.300 | | |
| Mean | 1.351 | 5.3 | |
| 0.25 | 1.036 | 0.23 | |
| | -0.018 | -7.7 | |
| | 1.036 | 0.23 | |
| | -0.018 | -7.7 | |
| Mean | 1.036 | 0.0 | 0.23 |
| | -0.018 | -7.7 | |
| 1.00 | 0.753 | 1.00 | |
| | -0.005 | -0.5 | |
| | 0.690 | 1.33 | |
| | 0.325 | 24.5 | |
| Mean | 0.721 | 6.2 | 1.15 |
| | 0.149 | | 13.0 |
| 5.00 | 0.415 | 4.85 | |
| | -0.146 | -3.0 | |
| | 0.428 | 4.53 | |
| | -0.469 | -10.4 | |
| Mean | 0.422 | 2.2 | 4.69 |
| | | | -6.6 |

Con

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.493 | 3.27 |

ID: -----

Samples Data :

| Sp1# | Abs | Conc |
|------|-------|------|
| 1 | 0.660 | 1.51 |

ID: SB103 1-3'

| | | |
|---|-------|--------|
| 2 | 1.256 | 0.03nd |
|---|-------|--------|

ID: SB104 18.5-20.5'

| | | |
|---|-------|------|
| 3 | 0.458 | 3.90 |
|---|-------|------|

ID: SB106 8.5-10.5'

| | | |
|---|-------|--------|
| 4 | 1.303 | 0.01nd |
|---|-------|--------|

ID: SB202A 13.5-15.5'

| | | |
|---|-------|--------|
| 5 | 1.272 | 0.02nd |
|---|-------|--------|

ID: SB202A 16-18'

| | | |
|---|-------|--------|
| 6 | 1.235 | 0.04nd |
|---|-------|--------|

ID: SB103 18.5-20.5'

| | | |
|---|-------|--------|
| 7 | 1.171 | 0.08nd |
|---|-------|--------|

ID: SB105 18.5-20.5'

| | | |
|---|-------|--------|
| 8 | 1.212 | 0.05nd |
|---|-------|--------|

ID: SB102 18.5-20.5'

| | | |
|---|-------|------|
| 9 | 0.509 | 3.04 |
|---|-------|------|

ID: SB101 3.5-5.5'

| | | |
|----|-------|--------|
| 10 | 1.185 | 0.07nd |
|----|-------|--------|

ID: SB102 3.5-5.5'

| | | |
|----|-------|------|
| 11 | 0.577 | 2.21 |
|----|-------|------|

ID: SB101 1-3'

| | | |
|----|-------|--------|
| 12 | 1.217 | 0.05nd |
|----|-------|--------|

ID: SB204 16-18'

| | | |
|----|-------|--------|
| 13 | 1.322 | 0.00nd |
|----|-------|--------|

ID: SB107 11-13'

| | | |
|----|-------|------|
| 14 | 0.587 | 2.11 |
|----|-------|------|

ID: SB107 6-8'

15

ID: SB204 13.5-15.5'

| | | |
|----|-------|------|
| 16 | 0.967 | 0.35 |
|----|-------|------|

ID: SB105 8.5-10.5'

| | | |
|----|-------|--------|
| 17 | 1.273 | 0.02nd |
|----|-------|--------|

ID: SB203 16-18'

| | | |
|----|-------|------|
| 18 | 1.142 | 0.11 |
|----|-------|------|

ID: SB203 13.5-15.5'

| | | |
|----|-------|------|
| 19 | 1.074 | 0.18 |
|----|-------|------|

ID: SB106 18.5-20.5'

| | | |
|----|-------|------|
| 20 | 0.654 | 1.55 |
|----|-------|------|

ID: PROFICIENCY A

| | | |
|----|-------|------|
| 21 | 0.569 | 2.29 |
|----|-------|------|

ID: PROFICIENCY B

| | | |
|----|-------|------|
| 22 | 0.442 | 4.22 |
|----|-------|------|

ID: PROFICIENCY C

END OF RUN

01-19-96

Please Wait 30 Minutes
01-23-96 16:31:12

01-23-96 17:21:21

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : J. Burke
LOT # : 451891
EXP DATE : 7-96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -1.004
Intercept = 0.762
Corr (r) = 0.9996

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 2.179 |
| 0.00 | 0.715 |
| 1.61 | -0.832 |

Calibrator Data:

| Conc | Abs | %CV | Predic | %Diff |
|------|--------|-------|--------|-------|
| 0.00 | 0.756 | | | |
| | 1.023 | | | |
| Mean | 0.889 | 21.2* | | |
| 0.25 | 0.806 | | 0.22 | |
| | -0.028 | | -12.7 | |
| | 0.792 | | 0.27 | |
| | 0.016 | | 6.1 | |
| Mean | 0.799 | 1.3 | 0.24 | |
| | -0.006 | | -2.5 | |
| 1.00 | 0.607 | | 0.99 | |
| | -0.006 | | -0.6 | |
| | 0.587 | | 1.10 | |
| | 0.104 | | 9.4 | |
| Mean | 0.597 | 2.4 | 1.05 | |
| | 0.048 | | 4.6 | |
| 5.00 | 0.279 | | 4.65 | |
| | -0.354 | | -7.6 | |
| | 0.260 | | 5.16 | |
| | 0.155 | | 7.1 | |
| Mean | 0.278 | 5.1 | 4.88 | |

Con

Ctrl# Abs Conc

1 0.355 3.21

ID: _____

Samples Data :

Spl# Abs Conc

1 0.911 nd

ID: SB206 5-7'

2 0.978 nd

ID: SB206 7-9'

3 1.032 nd

ID: SB207 13.5-15.5'

4 0.987 nd

ID: SB207 16-18'

5 1.012 nd

ID: SB207 21-23'

6 0.249 5.47Hi >50

ID: SB 108 3-5'

7 0.765 0.35

ID: SB 108 9-11'

8 0.920 nd

ID: SB 109 13-15'

9 0.634 0.86

ID: Proficiency A

10 0.427 2.31

ID: Proficiency B

11 0.284 4.55

ID: Proficiency C

END OF
01-23

Please Wait 30 Minutes
01-24-96 11:34:37

01-24-96 14:00:19

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : T. Burk
LOT # : 951891
EXP DATE : 9/96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.783
Intercept = 0.335
Corr (r) = 0.9997

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.401 |
| 0.00 | 0.370 |
| 1.61 | -0.940 |

Calibrator Data:

| Conc | Abs Diff | %CV | Predic %Diff |
|------|----------|-----|--------------|
| 0.00 | 0.974 | | |
| | 0.931 | | |
| Mean | 0.953 | 3.2 | |
| 0.25 | 0.773 | | 0.24 |
| | -0.011 | | -4.8 |
| | 0.756 | | 0.27 |
| | 0.024 | | 0.8 |
| Mean | 0.764 | 1.5 | 0.26 |
| | 0.006 | | 2.4 |
| 1.00 | 0.579 | | 0.88 |
| | -0.121 | | -13.8 |
| | 0.548 | | 1.04 |
| | 0.040 | | 3.9 |
| Mean | 0.563 | 3.8 | 0.96 |
| | -0.043 | | -4.5 |
| 5.00 | 0.282 | | 4.65 |
| | -0.354 | | -7.6 |
| | 0.253 | | 5.62 |

Me

Control

Ctrl# Abs Conc

1 0.326 3.55

ID: _____

Samples Data :

Spl# Abs Conc

1 0.861 0.09nd

ID: SB110 3-5'

2 0.822 0.15

ID: SB111 1-3'

3 0.674 0.50

ID: SB111 7-9'

4 0.238 6.24Hi

ID: SB112 5-7'

5 0.313 3.82

ID: SB112 9-11'

6 0.455 1.73

ID: SB113 7-9'

7 0.861 0.09nd

ID: SB113 9-11'

8 0.800 0.19

ID: SB114 35-5.5'

9 0.828 0.14

ID: SB114 8.5-10.5'

10 0.603 0.76

ID: Proficiency A

11 0.447 1.80

ID: Proficiency B

12 0.312 3.84

ID: Proficiency C

END
01-2

01-

PROTOCOL : PCB

TECH ID : J. Burks
LOT # : 951891
EXP DATE : 9/96Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.783
Intercept = 0.434
Corr (r) = 0.9964

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.582 |
| 0.00 | 0.318 |
| 1.61 | -0.772 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.918 | | |
| | 0.889 | | |
| Mean | 0.904 | 2.3 | |
| 0.25 | 0.739 | | 0.26 |
| | 0.006 | | 2.4 |
| | 0.760 | | 0.21 |
| | -0.043 | | -20.9 |
| Mean | 0.750 | 2.0 | 0.23 |
| | -0.019 | | -8.3 |
| 1.00 | 0.511 | | 1.24 |
| | 0.242 | | 19.5 |
| | 0.535 | | 1.08 |
| | 0.082 | | 7.6 |
| Mean | 0.523 | 3.2 | 1.16 |
| | 0.160 | | 13.8 |
| 5.00 | 0.283 | | 4.76 |
| | -0.242 | | -5.1 |
| | 0.289 | | 4.58 |
| | -0.418 | | -9.1 |
| Mean | 0.286 | 1.4 | 4.67 |
| | -0.771 | | |

Con

Ctrl

1 0.336 3.40

ID: _____

Samples Data :

Spl# Abs Conc

1 0.805 0.12

ID: SB 208 11-13

2 0.941 nd

ID: SB 208 23.5-225

3 0.838 0.07nd

ID: SB 209 16-18

4 0.881 0.02nd

ID: SB 209 18.5-20.5

5 0.847 0.06nd

ID: SB 210 16-18

6 0.875 0.02nd

ID: SB 210 18.5-20.5

7 0.825 0.09nd

ID: SB 115 3.5-5.5

8 0.877 0.02nd

ID: SB 115 6-8

9 0.612 0.68

ID: Proficiency A

10 0.446 1.01

ID: Proficiency B

11 0.292 4.49

ID: Proficiency CEND OF
01

Please Wait 30 Minutes
01-25-96 11:33:41

01-25-96 12:26:18

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : T. Burks
LOT # : 951368
EXP DATE : 5-96

Data Reduct: Lin. Regression
Xformation: Ln/Lgt8
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.635
Intercept = 0.322
Corr (r) = 1.0000

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.202 |
| 0.00 | 0.323 |
| 1.61 | -0.701 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.708 | | |
| | 0.708 | | |
| Mean | 0.708 | 0.0 | |
| 0.25 | 0.553 | | 0.22 |
| | -0.027 | | -12.1 |
| | 0.535 | | 0.28 |
| | 0.030 | | 10.6 |
| Mean | 0.544 | 2.3 | 0.25 |
| | 0.000 | | 0.1 |
| 1.00 | 0.393 | | 1.17 |
| | 0.171 | | 14.6 |
| | 0.428 | | 0.85 |
| | -0.152 | | -17.9 |
| Mean | 0.411 | 6.1 | 1.00 |
| | -0.002 | | -0.2 |
| 5.00 | 0.235 | | 4.98 |
| | -0.016 | | -0.7 |
| Mean | | | |

Control Data :

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.274 | 3.43 |

ID: _____

Samples Data :

| Spl# | Abs | Conc |
|------|-------|--------|
| 1 | 0.683 | 0.01nd |

ID: SB116 3.5-5.5'

| | | |
|---|-------|------|
| 2 | 0.583 | 0.15 |
|---|-------|------|

ID: SB116 6-8'

| | | |
|---|-------|--------|
| 3 | 0.696 | 0.00nd |
|---|-------|--------|

ID: SB117 3.5-5.5'

| | | |
|---|-------|------|
| 4 | 0.457 | 0.65 |
|---|-------|------|

ID: Proficiency A

| | | |
|---|-------|------|
| 5 | 0.339 | 1.89 |
|---|-------|------|

ID: Proficiency B

| | | |
|---|-------|------|
| 6 | 0.255 | 4.11 |
|---|-------|------|

ID: Proficiency C

END
01-

***** UNFINISHED *****

PROTOCOL : PCB

TECH ID : J. Burke

LOT # : 151368

EXP DATE : 5/96

Data Reduct: Lin. Regression
 Xformation: Ln/LgtB
 Read Mode : Absorbance
 Wavelength : 450 nm
 Units : PPB

EQUATION OF LINE :

Slope = -0.643
 Intercept = 0.332
 Corr (r) = 0.9999

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.231 |
| 0.00 | 0.320 |
| 1.61 | -0.698 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.827 | | |
| | 0.820 | | |
| Mean | 0.824 | 0.6 | |
| 0.25 | 0.639 | | 0.24 |
| | -0.006 | | -2.4 |
| | 0.636 | | 0.25 |
| | 0.001 | | 0.3 |
| Mean | 0.637 | 0.3 | 0.25 |
| | -0.003 | | -1.0 |
| 1.00 | 0.478 | | 1.02 |
| | 0.016 | | 1.6 |
| | 0.477 | | 1.02 |
| | 0.022 | | 2.2 |
| Mean | 0.477 | 0.1 | 1.02 |
| | 0.019 | | 1.9 |
| 5.00 | 0.277 | | 4.82 |
| | -0.180 | | -3.7 |
| | 0.270 | | 5.10 |
| Mean | | | |

Cont:

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.316 | 3.51 |

ID: _____

Samples Data :

| Spl# | Abs | Conc |
|------|-------|------|
| 1 | 0.583 | 0.42 |

ID: SB118 6-8'

2 0.807 0.00nd

ID: SB118 11-13'

3 0.403 1.79

ID: SB119 6-8'

4 0.814 0.00nd

ID: SB119 11-13'

5 0.764 0.03nd

ID: SB205A 8.5-10.5'

6 0.820 0.00nd

ID: SB205A 23.5-25.5'

7 0.832 nd

ID: SB211 8.5-10.5'

8 0.810 0.00nd

ID: SB211 18.5-20.5'

9 0.179 12.25Hi

ID: SB120 3.5-5.5'

10 0.678 0.15

ID: SB120 11-13'

ENC 01-

Please wait 30 Minutes
01-26-96 11:34:33

01-26-96 12:26:14

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : T. Buckst
LOT # : 951368
EXP DATE : 5/96

Data Reduct: Lin. Regression
Xformation: Ln/Lgt8
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.644
Intercept = 0.322
Corr (r) = 0.9995

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.234 |
| 0.00 | 0.288 |
| 1.61 | -0.698 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.789 | | |
| | 0.782 | | |
| Mean | 0.785 | 0.7 | |
| 0.25 | 0.612 | | 0.23 |
| | -0.018 | | -7.9 |
| | 0.604 | | 0.25 |
| | 0.004 | | 1.7 |
| Mean | 0.608 | 1.0 | 0.24 |
| | -0.007 | | -2.9 |
| 1.00 | 0.455 | | 1.00 |
| | 0.001 | | 0.1 |
| | 0.442 | | 1.11 |
| | 0.113 | | 10.1 |
| Mean | 0.449 | 2.1 | 1.06 |
| | 0.055 | | 5.2 |
| 5.00 | 0.266 | | 4.65 |
| | -0.349 | | -7.5 |
| | -0.083 | | -1.2 |
| Mean | | | |

Control

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.295 | 3.63 |

ID: _____

Samples Data :

| Sp1# | Abs | Conc |
|------|-------|------|
| 1 | 0.507 | 0.65 |

ID: SB121 6-8

| | | |
|---|-------|--------|
| 2 | 0.720 | 0.04nd |
|---|-------|--------|

ID: SB121 8.5-10.5

| | | |
|---|-------|------|
| 3 | 0.399 | 1.56 |
|---|-------|------|

ID: SB122 6-8

| | | |
|---|-------|--------|
| 4 | 0.773 | 0.00nd |
|---|-------|--------|

ID: SB212 19-21

| | | |
|---|-------|--------|
| 5 | 0.779 | 0.00nd |
|---|-------|--------|

ID: SB213 23.5-25.5

| | | |
|---|-------|------|
| 6 | 0.531 | 0.53 |
|---|-------|------|

ID: Proficiency A

| | | |
|---|-------|------|
| 7 | 0.382 | 1.79 |
|---|-------|------|

ID: Proficiency B

| | | |
|---|-------|------|
| 8 | 0.268 | 4.58 |
|---|-------|------|

ID: Proficiency C

Please Wait 30 Minutes
01-29-96 15:58:56

01-29-96 16:55:11

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : T. Burke
LOT # : 951368
EXP DATE : 5/96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.694
Intercept = 0.261
Corr (r) = 0.9984

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.261 |
| 0.00 | 0.192 |
| 1.61 | -0.824 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.866 | | |
| | 0.865 | | |
| Mean | 0.866 | 0.1 | |
| 0.25 | 0.681 | | 0.22 |
| | -0.029 | | -12.9 |
| | 0.667 | | 0.25 |
| | 0.003 | | 1.3 |
| Mean | 0.674 | 1.5 | 0.24 |
| | -0.013 | | -5.5 |
| 1.00 | 0.504 | | 0.90 |
| | -0.096 | | -10.6 |
| | 0.445 | | 1.35 |
| | 0.346 | | 25.7 |
| Mean | 0.474 | 8.8 | 1.10 |
| | 0.104 | | 9.4 |
| 5.00 | 0.268 | | 4.62 |
| | 0.375 | | -8.1 |
| | | | 4.93 |
| Me | | | |

Control Data :

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.311 | 3.36 |

ID: _____

Samples Data :

| Sp1# | Abs | Conc |
|------|-------|--------|
| 1 | 0.759 | 0.09nd |

ID: SB123 3.5-5.5

| | | |
|---|-------|--------|
| 2 | 0.809 | 0.03nd |
|---|-------|--------|

ID: SB123 6-8

| | | |
|---|-------|--------|
| 3 | 0.795 | 0.04nd |
|---|-------|--------|

ID: SB124 6-8

| | | |
|---|-------|------|
| 4 | 0.580 | 0.52 |
|---|-------|------|

ID: SB124 8.5-10.5

| | | |
|---|-------|------|
| 5 | 0.299 | 3.65 |
|---|-------|------|

ID: SB125 6-8

| | | |
|---|-------|--------|
| 6 | 0.804 | 0.04nd |
|---|-------|--------|

ID: SB125 8.5-10.5

| | | |
|---|-------|------|
| 7 | 0.480 | 1.06 |
|---|-------|------|

ID: SB214 13.5-15.5

| | | |
|---|-------|--------|
| 8 | 0.864 | 0.00nd |
|---|-------|--------|

ID: SB214 18.5-20.5

| | | |
|---|-------|--------|
| 9 | 0.792 | 0.05nd |
|---|-------|--------|

ID: SB215 17-19

| | | |
|----|-------|--------|
| 10 | 0.801 | 0.04nd |
|----|-------|--------|

ID: SB215 19-21

| | | |
|----|-------|------|
| 11 | 0.570 | 0.57 |
|----|-------|------|

ID: Prof A

| | | |
|----|-------|------|
| 12 | 0.407 | 1.73 |
|----|-------|------|

ID: Prof B

| | | |
|----|-------|------|
| 13 | 0.269 | 4.60 |
|----|-------|------|

ID: Prof C

Please Wait 30 Minutes
01-30-96 12:33:43

01-30-96 13:30:52

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : J. Burke
LOT # : 951368
EXP DATE : 5/96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.778
Intercept = 0.559
Corr (r) = 0.9973

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.690 |
| 0.00 | 0.461 |
| 1.61 | -0.647 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.780 | | |
| | 0.760 | | |
| Mean | 0.770 | 1.8 | |
| 0.25 | 0.645 | | 0.25 |
| | -0.002 | | -0.6 |
| | 0.655 | | 0.22 |
| | -0.031 | | -14.1 |
| Mean | 0.650 | 1.1 | 0.23 |
| | -0.016 | | -7.0 |
| 1.00 | 0.467 | | 1.18 |
| | 0.178 | | 15.1 |
| | 0.478 | | 1.09 |
| | 0.093 | | 0.5 |
| Mean | 0.472 | 1.6 | 1.13 |
| | 0.135 | | 11.9 |
| 5.00 | 0.256 | | 5.01 |
| | 0.014 | | 0.3 |
| Mean | | | |

Cor. value .

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.318 | 3.22 |

ID: _____

Samples Data :

| Spl# | Abs | Conc |
|------|-------|------|
| 1 | 0.527 | 0.76 |

ID: SB 126 11-13

2 0.839 nd

ID: SB 216 13.5-15.5

3 0.820 nd

ID: SB 217 7-9

4 0.839 nd

ID: SB 217 13-15

5 0.512 0.85

ID: SB 127 6-8

6 0.735 0.04nd

ID: SB 127 8.5-10.5

7 0.627 0.31

ID: Proficiency A

8 0.403 1.82

ID: Proficiency B

9 0.284 4.08

ID: Proficiency C

END
01-3

01-

PROTOCOL : PCB

TECH ID : T. Burke
LOT # : 151328
EXP DATE : 5/96Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.702
Intercept = 0.115
Corr (r) = 0.9981

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.128 |
| 0.00 | 0.040 |
| 1.61 | -0.980 |

Calibrator Data:

| Conc | Abs Diff | %CV | Predic %Diff |
|------|----------|-----|--------------|
| 0.00 | 0.840 | | |
| | 0.834 | | |
| Mean | 0.837 | 0.5 | |
| 0.25 | 0.630 | | 0.24 |
| | -0.008 | | -3.1 |
| | 0.635 | | 0.23 |
| | -0.020 | | -8.8 |
| Mean | 0.633 | 0.6 | 0.24 |
| | -0.014 | | -5.9 |
| 1.00 | 0.431 | | 1.08 |
| | 0.085 | | 7.8 |
| | 0.423 | | 1.14 |
| | 0.141 | | 12.4 |
| Mean | 0.427 | 1.2 | 1.11 |
| | 0.113 | | 10.1 |
| 5.00 | 0.238 | | 4.41 |
| | -0.592 | | -13.4 |
| | 0.210 | | 5.15 |
| | 0.110 | | 2.9 |
| Mean | 0 | | |
| | -0 | | |

Control

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.273 | 3.32 |

ID: _____

Samples Data :

| Spl# | Abs | Conc |
|------|-----|------|
|------|-----|------|

| | | |
|---|-------|------|
| 1 | 0.560 | 0.43 |
|---|-------|------|

ID: SB128 6-8'

| | | |
|---|-------|--------|
| 2 | 0.773 | 0.03nd |
|---|-------|--------|

ID: SB128 8.5-10.5'

| | | |
|---|-------|----|
| 3 | 1.546 | nd |
|---|-------|----|

ID: SB218 1-3'

| | | |
|---|-------|--------|
| 4 | 0.803 | 0.01nd |
|---|-------|--------|

ID: SB219 1-3'

| | | |
|---|-------|--------|
| 5 | 0.781 | 0.03nd |
|---|-------|--------|

ID: SB129 6-8'

| | | |
|---|-------|------|
| 6 | 0.569 | 0.40 |
|---|-------|------|

ID: SB129 11-13'

| | | |
|---|-------|------|
| 7 | 0.542 | 0.50 |
|---|-------|------|

ID: Proficiency A

| | | |
|---|-------|------|
| 8 | 0.364 | 1.71 |
|---|-------|------|

ID: Proficiency B

| | | |
|---|-------|------|
| 9 | 0.261 | 3.63 |
|---|-------|------|

ID: Proficiency C

END
01-

Please Wait 30 Minutes
01-31-96 16:39:28

01-31-96 18:13:14

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : T. Burke
LOT # : 95-1891
EXP DATE : 7/96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.667
Intercept = 0.092
Corr (r) = 0.9998

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.028 |
| 0.00 | 0.072 |
| 1.61 | -0.972 |

Calibrator Data:

| Conc | Abs Diff | %CV | Predic %Diff |
|------|----------|-----|--------------|
| 0.00 | 1.099 | | |
| | 1.082 | | |
| Mean | 1.090 | 1.1 | |
| 0.25 | 0.781 | | 0.29 |
| | 0.037 | | 12.8 |
| | 0.825 | | 0.21 |
| | -0.041 | | -19.5 |
| Mean | 0.803 | 3.9 | 0.25 |
| | -0.004 | | -1.7 |
| 1.00 | 0.563 | | 1.04 |
| | 0.040 | | 3.9 |
| | 0.566 | | 1.02 |
| | 0.022 | | 2.1 |
| Mean | 0.565 | 0.4 | 1.03 |
| | 0.031 | | 3.0 |
| 5.00 | 0.295 | | 5.07 |
| | 0.072 | | 1.4 |
| | -0.007 | | 4.79 |

Me:

Cont

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.308 | 2.79 |

ID: _____

Samples Data :

| Spl# | Abs | Conc |
|------|-------|--------|
| 1 | 0.970 | 0.05nd |

ID: SB130 6-8'

| | | |
|---|-------|--------|
| 2 | 1.014 | 0.02nd |
|---|-------|--------|

ID: SB130 8.5-10.5'

| | | |
|---|-------|--------|
| 3 | 1.076 | 0.00nd |
|---|-------|--------|

ID: SB131 6-8'

| | | |
|---|-------|--------|
| 4 | 1.062 | 0.01nd |
|---|-------|--------|

ID: SB132 8.5-10.5'

| | | |
|---|-------|--------|
| 5 | 1.029 | 0.02nd |
|---|-------|--------|

ID: SB220 8.5-10.5'

| | | |
|---|-------|----|
| 6 | 1.131 | nd |
|---|-------|----|

ID: SB220 11-13'

| | | |
|---|-------|------|
| 7 | 0.740 | 0.37 |
|---|-------|------|

ID: Proficiency A

| | | |
|---|-------|------|
| 8 | 0.511 | 1.38 |
|---|-------|------|

ID: Proficiency B

| | | |
|---|-------|------|
| 9 | 0.350 | 3.52 |
|---|-------|------|

ID: Proficiency C

END ()
01-31

Please Wait 30 Minutes
02-01-96 11:39:12

02-01-96 15:23:25

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : J. Burke
LOT # : 951892
EXP DATE : 7/96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.757
Intercept = 0.205
Corr (r) = 0.9983

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.294 |
| 0.00 | 0.129 |
| 1.61 | -0.978 |

Calibrator Data:

| Conc | Abs | %CV | Predic | %Diff |
|------|--------|-----|--------|-------|
| 0.00 | 1.508 | | | |
| | 1.488 | | | |
| Mean | 1.494 | 1.3 | | |
| 0.25 | 1.166 | | 0.25 | |
| | -0.005 | | -2.0 | |
| | 1.179 | | 0.23 | |
| | -0.021 | | -9.2 | |
| Mean | 1.172 | 0.8 | 0.24 | |
| | -0.013 | | -5.5 | |
| 1.00 | 0.778 | | 1.17 | |
| | 0.171 | | 14.6 | |
| | 0.811 | | 1.04 | |
| | 0.042 | | 4.0 | |
| Mean | 0.795 | 2.9 | 1.10 | |
| | 0.105 | | 9.5 | |
| 5.00 | 0.407 | | 4.80 | |
| | -0.199 | | -4.2 | |
| Mean | | | | |

Contro.

| Ctrl# | Abs | Conc |
|-------|-------|------|
| 1 | 0.488 | 3.40 |

ID: _____

Samples Data :

| Sp1# | Abs | Conc |
|------|-------|--------|
| 1 | 1.410 | 0.03nd |

ID: SB133 6-8

| | | |
|---|-------|------|
| 2 | 1.280 | 0.12 |
|---|-------|------|

ID: SB133 11-13

| | | |
|---|-------|--------|
| 3 | 1.411 | 0.03nd |
|---|-------|--------|

ID: SB221 9-11

| | | |
|---|-------|--------|
| 4 | 1.389 | 0.04nd |
|---|-------|--------|

ID: SB221 11-13

| | | |
|---|-------|--------|
| 5 | 1.406 | 0.03nd |
|---|-------|--------|

ID: SB222 13.5-15.5

| | | |
|---|-------|--------|
| 6 | 1.425 | 0.02nd |
|---|-------|--------|

ID: SB134 5-7

| | | |
|---|-------|------|
| 7 | 0.638 | 1.93 |
|---|-------|------|

ID: SB134 18-20

| | | |
|---|-------|------|
| 8 | 0.933 | 0.67 |
|---|-------|------|

ID: Proficiency A

| | | |
|---|-------|------|
| 9 | 0.615 | 2.10 |
|---|-------|------|

ID: Proficiency B

| | | |
|----|-------|------|
| 10 | 0.428 | 4.37 |
|----|-------|------|

ID: Proficiency C

END 0
02-01

02-01

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : J. Burke

LOT # : 157892

EXP DATE : 7/96

Data Reduct: Lin. Regression
 Xformation: Ln/LgtB
 Read Mode : Absorbance
 Wavelength : 450 nm
 Units : PPB

EQUATION OF LINE :

Slope = -0.784
 Intercept = 0.262
 Corr (r) = 0.9959

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.414 |
| 0.00 | 0.139 |
| 1.61 | -0.943 |

Calibrator Data:

| Conc | Abs Diff | %CV | Predic %Diff |
|------|----------|-----|--------------|
| 0.00 | 1.018 | | |
| | 0.982 | | |
| Mean | 1.000 | 2.5 | |
| 0.25 | 0.806 | | 0.23 |
| | -0.022 | | -9.9 |
| | 0.803 | | 0.23 |
| | -0.018 | | -7.7 |
| Mean | 0.804 | 0.2 | 0.23 |
| | -0.020 | | -8.8 |
| 1.00 | 0.530 | | 1.20 |
| | 0.197 | | 16.4 |
| | 0.539 | | 1.14 |
| | 0.142 | | 12.5 |
| Mean | 0.535 | 1.2 | 1.17 |
| | 0.169 | | 14.5 |
| 5.00 | 0.283 | | 4.58 |
| | -0.471 | | -9.2 |

Mean

Control

Ctrl# Abs Conc

1 0.341 3.23

ID: _____

Samples Data :

Spl# Abs Conc

1 0.397 2.38

ID: SB 135 5-7'

2 1.045 nd

ID: SB 135 7-9'

3 0.430 2.00

ID: SB 137 6-8'

4 1.041 nd

ID: SB 137 8.5-10.5

5 1.014 nd

ID: SB 136 5-7'

6 0.665 0.50

ID: Proficiency A

7 0.448 1.82

ID: Proficiency B

8 0.312 3.82

ID: Proficiency C

E
0

Please Wait 30 Minutes
02-08-96 19:32:12

02-08-96 19:32:44

***** OHMICRON *****

PROTOCOL : PCB

TECH ID : *PHIL SMITH*
LOT # :
EXP DATE:

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.751
Intercept = 0.446
Corr (r) = 0.9983

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.528 |
| 0.00 | 0.371 |
| 1.61 | -0.728 |

Calibrator Data:

| Conc | Abs | %CV | Predic |
|------|--------|-----|--------|
| | Diff | | %Diff |
| 0.00 | 0.894 | | |
| | 0.981 | | |
| Mean | 0.938 | 6.6 | |
| 0.25 | 0.774 | | 0.23 |
| | -0.022 | | -9.4 |
| | 0.767 | | 0.25 |
| | -0.005 | | -1.8 |
| Mean | 0.771 | 0.7 | 0.24 |
| | -0.013 | | -5.5 |
| 1.00 | 0.576 | | 0.97 |
| | -0.026 | | -2.7 |
| | 0.533 | | 1.25 |
| | 0.252 | | 20.1 |
| Mean | 0.555 | 5.4 | 1.11 |
| | 0.105 | | 9.5 |
| 5.00 | 0.333 | | 4.01 |
| | -0.990 | | -24.7 |
| | 0.022 | | 5.73 |
| Me | | | |

Co.

Ctrl# Abs Conc

1 0.390 2.85

ID:

Samples Data :

Spl# Abs Conc

1 0.400 2.68

ID: *SB138 18.5-20.5*

2 0.751 0.28

ID: *SB139 6-8'*

3 0.872 0.06nd

ID: *SB140 8.5-10.5'*

4 0.868 0.06nd

ID: *SB141 6-8'*

5 0.813 0.15

ID: *SB141 8.5-10.5'*

6 0.990 0.04nd

ID: *SB142 6-8'*

7 0.991 0.04nd

ID: *SB142 8.5-10.5'*

8 0.515 1.39

ID: *SB143 6-8'*

9 0.487 1.64

ID: *SB143 8.5-10.5'*

10 0.602 0.83

ID: *SB144 8.5-10.5'*

11 0.621 0.74

ID: *SB144 11-13'*

12 0.551 1.13

ID: *Probiency A*

13 0.437 2.17

ID: *Probiency B*

14 0.352 3.57

ID: *Probiency C*

02-13-96 19:56:43

***** OMIACRON *****

PROTOCOL : PCB

TECH ID : Mark Paul

LOT # : 951879

EXP DATE : 9/96

Data Reduct: Lin. Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.663
Intercept = 0.480
Corr (r) = 0.9998

Transformed Data :

| Conc | Abs |
|-------|--------|
| -1.39 | 1.413 |
| 0.00 | 0.456 |
| 1.61 | -0.576 |

Calibrator Data:

| Conc | Abs Diff | %CV | Predic %Diff |
|------|----------|-----|--------------|
| 0.00 | 1.039 | | |
| | 1.010 | | |
| Mean | 1.025 | 2.0 | |
| 0.25 | 0.830 | | 0.23 |
| | -0.019 | | -0.1 |
| | 0.818 | | 0.26 |
| | 0.010 | | 3.7 |
| Mean | 0.824 | 1.1 | 0.25 |
| | -0.005 | | -2.0 |
| 1.00 | 0.626 | | 1.05 |
| | 0.048 | | 4.6 |
| | 0.629 | | 1.03 |
| | 0.027 | | 2.6 |
| Mean | 0.627 | 0.4 | 1.04 |
| | 0.037 | | 3.6 |
| 5.00 | 0.367 | | 4.96 |
| | -0.045 | | -0.9 |
| | 0.370 | | 4.88 |
| | -0.122 | | -2.5 |
| Mean | 0.369 | 0.5 | 4.92 |
| | -0.084 | | -1.7 |

Control Data :

Ctrl# Abs Conc

1 0.419 3.59

ID: 3.01 0.6 6: 951879

Samples Data :

SPI# Abs Conc

1 0.632 1.01

ID: SB149 8.5-10.5'

2 0.573 1.44

ID: SB149 16-18'

3 0.683 0.73

ID: SB223 18.5-20.5'

4 0.295 8.07Hi

ID: SB150 6-8'

5 0.573 1.44

ID: SB151 5-7'

6 0.580 1.39

ID: SB151 9-11'

7 0.566 1.50

ID: SB152 7-9'

8 0.433 3.30

ID: SB152 9-11'

9 0.695 0.67

ID: Proficiency A

10 0.497 2.25

ID: Proficiency B

11 0.376 4.70

ID: Proficiency C

END OF RUN

02-13-96 19:59:51

D

FIELD GC RESULTS - VOCs

FIELD GC SUMMARY SHEET - Still Bottoms/Treatment Lagoon

**ACS NPL SITE
Griffith, Indiana**

| Boring | Depth | PID Reading | DP | Acetone | 1,1 Dichloroethene | trans 1,2 Dichloroethene | 1,1 Dichloroethane | 2-Butanone (MEK)/cis 1,2-DCE | cis 1,2 Dichloroethene | 1,2 Dichloroethane | 1,1,1 Trichloroethane | Benzene | Carbon tetrachloride | Trichloroethene | 4-Methyl-2-pentanone (MIBK) | 1,1,2 Trichloroethane | Toluene | Tetrachloroethene | Chlorobenzene | Ethylbenzene | m,p Xylene | Styrene | o Xylene | Total VOCs (ppm) |
|-----------|------------|-------------|--------|---------|--------------------|--------------------------|--------------------|------------------------------|------------------------|--------------------|-----------------------|---------|----------------------|-----------------|-----------------------------|-----------------------|---------|-------------------|---------------|--------------|------------|---------|----------|------------------|
| | | | | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | mg/kg |
| SB101 | 1-3' | 5380 | 100 | | | | | | | | | | | | | | 3470 | | | 730 | 2540 | | 1950 | 8.7 ppm |
| SB101 | 3.5-5.5' | 1380 | 50 | | | | | 1140 | | | | | | | | | 3690 | | | 1040 | 2900 | | 2800 | 11.5 ppm |
| SB102 | 3.5-5.5' | 3801 | 250 | | | | | 9950 | | | | | | | 3980 | | 1620 | | | | | | 1250 | 20.9 ppm |
| SB102 | 18.5-20.5' | 3245 | 2500 | | | | | 42900 | | | 16400 | | | 14600 | | | 13800 | 26400 | | | | | | 114.1 ppm |
| SB103 | 1-3' | 1041 | 50 | | | | | | | | | | | | | | | | | | | | | 0.0 ppm |
| SB103 | 18.5-20.5' | 592 | 50 | 5400 | 610 | | 2080 | 24200 | | | 8030 | | | 7920 | 1440 | | 14100 | 49600 | | 3990 | 17200 | | 5200 | 139.8 ppm |
| SB104 | 18.5-20.5' | 772 | 1000 | | | | 2660 | 51200 | | | 17000 | | | 7050 | | | 20400 | 13600 | | | 13000 | | 5840 | 130.8 ppm |
| SB105 | 8.5-10.5' | 2259 | 1000 | | | | | 4600 | | 6400 | | | | 2500 | | | 45000 | 45000 | 3600 | 50600 | 190000 | | 36000 | 383.7 ppm |
| SB105 | 18.5-20.5' | 1269 | 2500 | | | | | | 12500 | | | | | | | | 11100 | 17200 | | | | | | 40.8 ppm |
| SB106 | 8.5-10.5' | 1012 | 1000 | | | | | 248000 | | | 14300 | | | 7610 | | | 56300 | 18200 | | 32900 | 101000 | | 39900 | 518.2 ppm |
| SB106 | 18.5-20.5' | 1833 | 1000 | | | | | | | | 3900 | | | 1300 | | | 3700 | 10000 | | | | 3200 | | 22.1 ppm |
| SB107 | 6-8' | 2463 | 250 | | 3600 | | | 390000 | 170000 | | 5000 | 7900 | | 580000 | 9600 | | 620000 | 600000 | 8900 | 250000 | 710000 | | 200000 | 3555.0 ppm |
| SB107 | 11-13' | 1520 | 250 | | | | | 1870 | 1300 | | | | | | | | 4700 | 1300 | | 4000 | 15000 | | 3100 | 31.3 ppm |
| SB108 | 3-5' | 9922 | 2500 | | | | | | 25000 | | | | | 17000 | | | 69000 | 26000 | | 57000 | 166000 | | 37000 | 397.0 ppm |
| SB108 Dup | 3-5' | 9922 | 2500 | | | | | | 28000 | | | | | 18000 | | | 82000 | 42000 | | 62000 | 177000 | | 42000 | 451.0 ppm |
| SB108 | 9-11' | 3868 | 1000 | | | | | | | | | | | | | | 5800 | | | 3300 | 20800 | | | 29.9 ppm |
| SB108 | 11-13' | 5716 | 1000 | 14500 | 4400 | | | 27300 | 11000 | | 28000 | 8100 | | 49000 | | | 460000 | 130000 | | 200000 | 700000 | | 120000 | 1752.3 ppm |
| SB109 | 13-15' | 49 | 50 | | | | | | | | | | | | | | | | | | | | | |
| SB110 | 7-9' | 9592 | 250000 | 2200 | 32000 | | 740 | 17000 | | | 1000000 | 14000 | | 1200000 | 4400 | | 870000 | 3800000 | 7200 | 27000 | 140000 | | 900000 | 8014.5 ppm |
| SB111 | 1-3' | 9182 | 5000 | | | | | | | | | | | | | | | | | | | | | |
| SB111 | 7-9' | 8107 | 2500 | | 13000 | | | | | | 38000 | | | 35000 | | | 190000 | 69000 | | 52000 | 160000 | | 35000 | 541.0 ppm |
| SB112 | 9-11' | 8524 | 2500 | | 29000 | | | 136000 | | | 58000 | 22000 | | 64000 | | | 120000 | 84600 | | 17000 | 56000 | | | 392.6 ppm |
| SB112 | 11-13' | 9564 | 2500 | | | | | 45000 | | | | | | 6900 | | | 110000 | 92000 | | 68000 | 200000 | | 38000 | 759.9 ppm |
| SB113 | 7-9' | 3875 | 1000 | | | | | | | | | | | | | | 13000 | | | | | | | 58.0 ppm |
| SB113 | 9-11' | 6529 | 250 | | | | | | | | | | | | | | | | | 11000 | 31000 | | | 42.0 ppm |
| SB114 | 3.5-5.5' | 904 | 50 | | | | | | | | | | | | | | | | | | 2300 | | | 2.3 ppm |
| SB114 | 8.5-10.5' | 111 | 50 | | | | | | | | | 570 | | | | | | | | | 530 | | | 1.1 ppm |
| SB115 | 3.5-5.5' | 156 | 50 | | | 250 | | | | | | 490 | | | | | | | | | 480 | | | 1.0 ppm |
| SB116 | 6-8' | 38 | 50 | | | | | | | | | | | | 260 | | | 1200 | | | 320 | | | 2.0 ppm |
| SB116 | 1-3' | 459 | 250 | 4140 | | | | | 2500 | | | | | | | | | | | | | | | 0.0 ppm |
| SB117 | 16-18' | 238 | 50 | | 2200 | 250 | | | 3900 | | | | | | | | 22000 | | | 14000 | 42000 | | 22000 | 106.6 ppm |
| SB118 | 3.5-5.5' | 4965 | 500 | 10400 | 2900 | | | | | | | | | | | | 3100 | | | | | | | 9.5 ppm |
| SB118 | 6-8' | 5625 | 10000 | | | | | | | | 7500 | | | 11000 | 13000 | | 570000 | 42000 | 28000 | 220000 | 670000 | | 280000 | 1854.8 ppm |
| SB119 | 3.5-5.5' | 3294 | 50000 | | | | | 68500 | | | | 25000 | | 71000 | | | 3400000 | 290000 | 46000 | 680000 | 2700000 | | 550000 | 7737.0 ppm |
| SB119 | 6-8' | 3219 | 100000 | | | | | | | | | | | | | | 1300000 | | 93000 | 530000 | 2200000 | | 960000 | 5176.5 ppm |
| SB120 | 11-13' | 1243 | 1000 | | | | | | 8000 | | | | | | | | 4500000 | | | 1000000 | 3700000 | | 1500000 | 10700.0 ppm |
| SB121 | 6-8' | 1684 | 1000 | | | | | | | | | | | | | | 37000 | | | 19000 | 57000 | | 25000 | 146.0 ppm |
| SB121 Dup | 6-8' | 1684 | 1000 | | | | | | | | | | | 9400 | | | 17000 | 5100 | | 4100 | 28000 | | 17000 | 80.6 ppm |
| SB121 | 11-13' | 2367 | 2000 | | | | | 21000 | | | 18000 | | | 11000 | | | 36000 | 5200 | | 9800 | 33000 | | 20000 | 115.0 ppm |
| SB122 | 1-3' | 1600 | 1000 | | 7700 | | | | 33000 | | 34000 | | | 54000 | | | 48000 | 37000 | | | 15000 | | | 193.0 ppm |
| SB123 | 3-5' | 366 | 500 | 16300 | | | | | 16000 | | 2400 | 3200 | | 25000 | | | 97000 | 66000 | | 23000 | 83000 | | 48000 | 416.7 ppm |
| SB124 | 11-13' | 512 | 250 | 9760 | | | | | | | | 1800 | | | | | 260000 | 9700 | 3500 | 110000 | 250000 | | 120000 | 791.1 ppm |
| | | | | | | | | | | | | | | | | | 11000 | | | 5300 | 17000 | | 6700 | 51.6 ppm |

ACS NPL SITE
Griffith, Indiana

Page 2

ACS NPL SITE
Griffith, Indiana

| Boring | Depth | PID Reading | DF | Acetone | 1,1 Dichloroethene | trans 1,2 Dichloroethene | 1,1 Dichloroethane | 2-Butanone (MEK) (as 1,2-DCE | cis 1,2 Dichloroethene | 1,2 Dichloroethane | 1,1,1 Trichloroethene | Benzene | Carbon tetrachloride | Trichloroethene | 4-Methyl-2-pentanone (MIBK) | 1,1,2 Trichloroethane | Toluene | Tetrachloroethene | Chlorobenzene | Ethylbenzene | m+p Xylene | Styrene | o Xylene | Total VOCs (ppm) |
|--------|---------------|-------------|------|---------|--------------------|--------------------------|--------------------|------------------------------|------------------------|--------------------|-----------------------|---------|----------------------|-----------------|-----------------------------|-----------------------|---------|-------------------|---------------|--------------|------------|---------|----------|------------------|
| | | | | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | ug/kg | mg/kg |
| SB202A | 13.5-15.5' | 11 | 50 | | | | | | | | | 330 | | | | | | | | | | | | 2.3 ppm |
| SB202A | 16-18' | 6 | 50 | | | | | | | | | 920 | | | | | | | | | 2000 | | | 0.9 ppm |
| SB203 | 13.5-15.5' | 42 | 50 | | | | | | | | | | | | | | | | | 548 | 2160 | | | 2.7 ppm |
| SB203 | 16-18' | 37 | 50 | | | | | | | | | 1290 | | | | | | | | 454 | 1460 | | | 3.2 ppm |
| SB204 | 13.5-15.5' | 8 | 50 | | | | | | | | | | | | | | | | | | | | | 1.1 ppm |
| SB204 | 16-18' | 17 | 50 | | | | | | | | | | | | | | | | | | | | | 2.7 ppm |
| SB205 | 3.5-5.5' | 592 | 100 | 16000 | 5600 | | | 3200 | 1500 | 11000 | | 1500 | | 66000 | 88000000 | 3400 | 2600000 | 128000 | 2600 | 6000000 | 13000000 | | 1800000 | 111639 ppm |
| SB205 | 6-8' | 1062 | 500 | 32200 | 7360 | | | 83000 | | 2510 | | | | 16400 | | | 162000 | 24200 | | 65600 | 348000 | | | 937 ppm |
| SB205A | 8.5-10.5' | 50 | 50 | | | | | | | | | | | | | | | | | | | | | 0.0 ppm |
| SB205A | 23.5-25.5' | 160 | 50 | | | | | | | | | | | | | | | | | | | | | 0.9 ppm |
| SB206 | 5-7' | 330 | 50 | | | | | | | | | | | | | | | | | | | | | 0.9 ppm |
| SB206 | 7-9' | 192 | 50 | | | | | | | | | | | | | | 380 | | | 520 | 2800 | | 290 | 4.0 ppm |
| SB207 | 13.5-15.5' | 38 | 50 | | | | | | | | | | | | | | 400 | | | 500 | 2400 | | 300 | 3.6 ppm |
| SB207 | 16-18' | 84 | 50 | | | | | | | | | | | | | | | | | | | | | 0.0 ppm |
| SB207 | 21-23' | 69 | 50 | | | | | | | | | | | | | | | | | 340 | 760 | | | 1.1 ppm |
| SB208 | 11-13' | 3810 | 250 | | | | | | | | | | | | | | | | | | 1100 | | | 1.1 ppm |
| SB208 | 21.5-25.5' | 830 | 50 | | | | | | | | | | | | | | | | | | | | | 0.0 ppm |
| SB209 | 16-18' | 149 | 50 | | | | | | | | | | | | | | | | | | | | | 0.0 ppm |
| SB209 | 18.5-20.5' | 150 | 50 | | | | | | | | | | | | | | | | | | 390 | | | 0.4 ppm |
| SB210 | 16-18' | 283 | 50 | | | | | | | | | | | | | | | | | | 2600 | | | 2.6 ppm |
| SB210 | 18.5-20.5' | 480 | 50 | | | | | | | | | | | | | | | | | 1100 | 4000 | | | 5.1 ppm |
| SB210 | 18.5-20.5'DUP | 480 | 50 | | | | | | | | | | | | | | | | | 630 | 2400 | | | 3.0 ppm |
| SB211 | 8.5-10.5' | 60 | 50 | | | | | | | | | | | | | | | | | 690 | 2700 | | | 3.4 ppm |
| SB211 | 18.5-20.5' | 233 | 50 | | | | | | | | | | | | | | | | | | | | | 0.3 ppm |
| SB212 | 19-21' | 726 | 200 | | | | | | | | | | | | | | | | | | 610 | | | 0.8 ppm |
| SB212 | 23-25' | 1788 | 50 | 2600 | | | | | | | | 800 | | | 2100 | | | | | 500 | 3600 | | 840 | 6 ppm |
| SB213 | 23.5-25.5' | 106 | 50 | 720 | | | | | | | | 200 | | | | | | | | 1400 | 4700 | | 2100 | 16 ppm |
| SB213 | 26-28' | 199 | 50 | | | | | | | | | 560 | | | | | | | | | | | | 0.9 ppm |
| SB214 | 16-18' | 480 | 250 | | | | | | | | | | | | | | | | | 810 | 3000 | | | 4.4 ppm |
| SB214 | 21-23' | 552 | 500 | | | | | | | | | | | | | | | | | | 2200 | | | 2.2 ppm |
| SB215 | 17-19' | 780 | 2500 | | | | | | | | | | | | | | | | | 9480 | | | | 9.5 ppm |
| SB215 | 19-21' | 897 | 50 | | | | | | | | | | | | 56500 | | 60200 | | | 53500 | 157300 | | 69600 | 397 ppm |
| SB216 | 13.5-15.5' | 4200 | 50 | | | | | 780 | | | | 330 | | | | | | | | | 1310 | | 380 | 1.7 ppm |
| SB217 | 7-9' | 800 | 500 | | | | | | | | 2710 | | | | | | 2280 | | | 1840 | 6250 | | 1790 | 13 ppm |
| SB217 | 13-15' | 2680 | 500 | | | | | 21700 | | | | | | | | | 35800 | 8130 | | 16800 | 78800 | | 23000 | 165 ppm |
| SB218 | 3.5-5.5' | 2358 | 50 | | | | | | | | | | | | | | 14000 | | | 4470 | 18000 | | 6850 | 65 ppm |
| SB218 | 8.5-10.5' | 3662 | 50 | | | | | 6320 | | | | 368 | | | | | 340 | | | | 512 | | | 0.9 ppm |
| SB219 | 3.5-5.5' | 508 | 250 | | | | | 7290 | | | | | | | 1380 | | 2340 | | | 812 | 3970 | | 4060 | 19 ppm |
| SB219 | 8.5-10.5' | 388 | 1000 | | | | 4290 | 37200 | | | | | | | | | 6980 | | | | | | | 14 ppm |
| SB220 | 8.5-10.5' | 263 | 50 | | | | | | | | | 2950 | | | 13700 | | 15600 | | | | | | | 71 ppm |
| SB220 | 11-13' | 1862 | 250 | | | | | | | | | 7430 | | | | | | | | | | | | 3.0 ppm |
| SB221 | 9-11' | 3105 | 1000 | | 25300 | | | 32500 | | | | 6880 | | | | | | | | | | | | 7.4 ppm |
| SB221 | 11-13' | 1338 | 250 | 11800 | 16800 | | | 17100 | | | 850 | | | | | | 37300 | | | 8790 | 30400 | | 11200 | 152 ppm |
| SB222 | 13.5-15.5' | 3015 | 250 | | | | | | | | | 6810 | | | | | 12900 | | | 5880 | 14200 | | 6320 | 89 ppm |
| SB223 | 18.5-20.5' | 51 | 50 | | | | | | | | | 437 | | | | | 26600 | | | 6120 | 19300 | | 6460 | 65 ppm |
| | | | | | | | | | | | | | | | | | | | | 555 | | | | 1.0 ppm |

FIELD GC SUMMARY SHEET - Off-Site Containment Area

ACS NPL SITE

Griffith, Indiana

This table presents the results of field GC analysis of soil samples collected during the Barrier Wall Pre-design activities at the ACS Site in Griffith, Indiana during January and February 1996.

All samples were considered to be medium level soils due to the high contaminant concentrations and matrix interferences encountered. All results are considered to be estimated concentration.

PID = field PID results were determined using the jar headspace method.

DF = Dilution factor. Many samples were analyzed at multiple dilutions; only the lowest dilution factor is presented here. The reporting limit for non-detected compounds is equal to the dilution factor times the method detection limit (5 ppb for all compounds except 10 ppb for acetone and MEK).

E

IEA ANALYTICAL LABORATORY RESULTS

IEA, Inc
IEA Project NO.: 1589_126D
SDG: 01511
Client Project ID: 4077.0075
Data Summary Package

IEA

SDG NARRATIVE VOLATILE FRACTION

PROJECT: 1589-126

BATCH: 01511

METHOD: 1/91 SOW

SAMPLES: Three (3) Soil Samples

These samples were received at Industrial and Environmental Analysts, Inc. (IEA) on January 25 and February 01, 1996. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and an abbreviated client ID for simplicity in forms generation. This package makes reference to these ID's as listed on the IEA Assigned Number Index. In addition the pH for the water samples are listed on this index. All analyses were performed according to the EPA 1/91 SOW and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody (COC) documentation.

There is an air peak that is common to all of the volatile analyses and a solvent peak that is common to some volatile analyses. These peaks are present at the beginning of the Reconstructed Ion Chromatograms (RIC) and are labeled. These peaks are not searched as Tentatively Identified Compounds (TIC's).

The chromatographic separation of the analytes is performed using a J & W Scientific 75 m X 0.53 mm DB-624 fused silica capillary column with a 3.0 μ m film thickness.

The trap used in the purge-and-trap apparatus is a Supelco trap K (VOCARB 3000) consisting of 10 cm of Carboxen B, 6 cm of Carboxen 1000, and 1 cm of Carboxen 1001. This trap meets the criteria in the SOW for contract OLM03.1 for an equivalent trap. Documentation is maintained within the QA department for on-site review.

The "J" flag used on the Form I VOA indicates an estimated concentration between the Contract Required Quantitation Limit (CRQL) and the Method Detection Limit (MDL), not accounting for dilution of the sample prior to analysis. This flag is also used on the Form I VOA-TIC to indicate an estimated amount for all non-target concentrations.

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialled and dated by the analyst.

The "Y" flag is used as a qualifier on the Form I VOA-TIC to indicate a siloxane contaminant attributed to trap breakdown.

The "N" flag used on the Form I VOA-TIC indicates that there is the presumptive evidence of a compound based on the mass spectral library search and the interpretation of the mass spectral interpretation specialist.

The "D" flag is used on the surrogate and spike recoveries to designate they were diluted out.

IEA

SDG NARRATIVE VOLATILE FRACTION

The following nonconformances associated with the analysis of the samples in this case are as follows:

Sample number 04 (client ID ACS-SB118SS3-6'-8') was used for the medium level soil matrix spike/matrix spike duplicate (MS/MSD). Due to the high dilution factor most of the spike compounds did not recover. This is designated with the "D" flag on the percent recoveries.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

 03/05/96

Brian D. Neptune
Lead Analyst, GC/MS Final Review
IEA, Inc.

IEA

SDG NARRATIVE PESTICIDE FRACTION

CASE: 1589-126

SDG NO.:01511

CONTRACT: SOW 1/91

Samples: (8) Soil Samples

This case was closed on February 1, 1996. Each sample has been assigned a 9-character IEA lab identification number.

The chromatographic separation of the analytes was performed using a J & W 30 m X 0.53 mm DB-1701 fused silica capillary column with a 1.0 μ m bonded phase film thickness and a Restek 30 m X 0.53 mm Rt_x-35 fused silica capillary column with a 1.0 μ m bonded phase film thickness. The Rt_x-35 column used as one of the analytical columns is equivalent to the DB-608 column specified in the SOW.

The filenames have an extension of ".D" to denote the use of the ASCII file generated by the data system to produce the forms. Two significant figures were reported for the "calculated amount" on Form VII PEST-1 and -2. All of the initial pesticide chromatograms were missing the scaling factor; however, the scaling factor (in mV scale) appeared for the re-plotted chromatograms.

Gel Permeation Cleanup (GPC) was performed using a column series: a 19 X 300 mm Waters UltraStyrigel column paired with a 19 X 150 mm Waters UltraStyrigel column. The additional column provides the additional resolution needed to achieve the criteria for pesticide analysis. This column combination meets the equivalency criteria in paragraph 10.1.8.1.2, page D-43/PEST. A 2 mL injection loop is utilized by the GPC system.

All soil sample extracts underwent GPC as required by the SOW. Florisil column cleanup was performed on all sample extracts as required by the SOW.

The "P" flag is used to designate that there is a greater than 25% difference in the detected concentration of an analyte between the two analytical columns.

The "J" flag is used to designate target compounds reported below the quantitation limits.

The "**" used on the Form III PEST designates percent recoveries and/or RPD's are outside the QC limits.

The "D" flag indicates a target compound that is reported in the more dilute analysis.

Any nonconformances associated with the analysis of the samples in this case are note as follows:

The Matrix Spike/Matrix Spike Duplicate had zero (0) percent recovery due to sample dilution.

The aroclor 1254 present in the samples had high percent differences on the RTX-35 column due to overlapping of the aroclor 1248 pattern.

IEA

SDG NARRATIVE PESTICIDE FRACTION

All samples were analyzed at dilutions due to target compounds that exceeded the calibration range. The surrogate recoveries were below the advisory limits due to dilutions and sample matrix interference.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

Dwight A. Dingess 03/07/96

Dwight A. Dingess
GC SV Lead Analyst
IEA, Inc.



MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL INSTRUCTIONS:

TURKJAROUND

☐ PECFA

KS (standard)

WI LUST

1 WEEK

ACT 307

☐ 3 DAYS☐ REPORT DRY WT☐ 1 DAY

☐ OTHER:

[illegible]

LP DQO Level 3 Analysis

Filer # 3609255020

COC 5252 #5 92 00078
92 00079

PROJ. MGR: Pete Vast
708-691-5020

| SIGNATURE | PRINT NAME | COMPANY / TITLE | DATE | TIME |
|-------------------------------------|---------------------|------------------------------------|---------|------|
| RELINQUISHED BY: <i>[Signature]</i> | DAVID A. PIERZYNSKI | MONTGOMERY WATSON / Hydrogeologist | 1-24-96 | 1800 |
| RECEIVED BY: <i>[Signature]</i> | B. H. Springer | IBT | 1/25/96 | 0940 |
| RELINQUISHED BY: | | | | |
| RECEIVED BY: | | | | |

C-O-C No.

1589-126D

NAME OF COURIER: _____

AIRBILL NUMBER:



MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL
INSTRUCTIONS:

- ☐ PECFA
☐ WILUST
☐ ACT 307
☐ REPORT DRY WT
☐ OTHER:

TURNAROUND

- ☐ .EKS (standard)
☐ 1 WEEK
☐ 3 DAYS
☐ 1 DAY

| | | | | | |
|--------------------------------------|-----------------|-------------|----------------------------------------------------------------------------------------------------------------|--|--|
| PROJECT NAME: ACS | | | PROJECT #: 4077.0075 | | |
| CITY: Griffith, Indiana | | | STATE: | | |
| SAMPLER(S): David A. Pryor | | | | | |
| COLLECTION DATE | COLLECTION TIME | GRAB / COMP | SAMPLE ID | | |
| 1-24-96 | 1600 | Grab | ACS-SB118SS3-6'-8' | | |
| 1-25-96 | 0915 | | ACS-SB119SS3-6'-8' | | |
| 1-26-96 | 1035 | | ACS-SB124SS4-8.5'-10.5' | | |
| 1-30-96 | 0900 | | ACS-SB127SS3-6'-8' | | |
| 1-30-96 | 1100 | | ACS-SB128SS3-6'-8' | | |
| 1-30-96 | 1430 | | ACS-SB129SS5-11'-13' | | |
| 1-26-96 | 0900 | | ACS-SB214SS6-13.5'-15.5' | | |
| 1-30-96 | 1100 | Grab | ACS-SB128SS3-6'-8' DUP | | |
| 1-30-96 | 1430 | Grab | ACS-SB129SS5-11'-13' MS/MSD | | |
| SPECIAL INSTRUCTIONS: | | | COC Seal #s: 92-00080, 81 | | |
| RECEIVED: | | | <input type="checkbox"/> INTACT <input type="checkbox"/> ON ICE TEMP _____ OF PROJECT MGR: Pete Vast | | |

CLP TCL VOCs
 CLP TCL PCBs

* NOTE: Hold off on PCB Analysis until
 Pete Vast or Dave Preczynski calls to confirm!

5°C

| | | | | |
|----------------------------------|------------------------|-------------------------------------------|----------------|--------------|
| SIGNATURE | PRINT NAME | COMPANY / TITLE | DATE | TIME |
| David A. Pryor | DAVID PRACYNSKI | Montgomery Watson / Hydrogeologist | 1/31/96 | 1730 |
| RECEIVED BY: D. McCormick | D. McCormick | IEA / Sample Mgr | 2/1/96 | 09:45 |
| RELINQUISHED BY: | | | | |
| RECEIVED BY: | | | | |

C-O-C No.

1589-1261

NAME OF COURIER: **Fedex**AIRBILL NUMBER: **3609254994**

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB110SS4-7'-9'

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960151101

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0130E07.D

Level: (low/med) MED

Date Received: 01/25/96

% Moisture: not dec. 15

Date Analyzed: 01/30/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 400.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|---------|---|
| 74-87-3 | Chloromethane | 560000 | U |
| 74-83-9 | Bromomethane | 560000 | U |
| 75-01-4 | Vinyl Chloride | 560000 | U |
| 75-00-3 | Chloroethane | 560000 | U |
| 75-09-2 | Methylene Chloride | 560000 | U |
| 66-64-1 | Acetone | 560000 | U |
| 75-15-0 | Carbon Disulfide | 560000 | U |
| 75-35-4 | 1,1-Dichloroethene | 560000 | U |
| 75-34-3 | 1,1-Dichloroethane | 560000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 240000 | J |
| 67-66-3 | Chloroform | 560000 | U |
| 107-06-2 | 1,2-Dichloroethane | 560000 | U |
| 78-93-3 | 2-Butanone | 560000 | U |
| 75-55-6 | 1,1,1-Trichloroethane | 2200000 | |
| 50-23-5 | Carbon Tetrachloride | 560000 | U |
| 75-27-4 | Bromodichloromethane | 560000 | U |
| 78-87-5 | 1,2-Dichloropropane | 560000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 560000 | U |
| 79-01-6 | Trichloroethene | 2800000 | |
| 124-48-1 | Dibromochloromethane | 560000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 560000 | U |
| 71-43-2 | Benzene | 150000 | J |
| 10061-02-6 | Trans-1,3-Dichloropropene | 560000 | U |
| 75-25-2 | Bromoform | 560000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 560000 | U |
| 591-78-6 | 2-Hexanone | 560000 | U |
| 127-18-4 | Tetrachloroethene | 8300000 | |
| 108-88-3 | Toluene | 2600000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 560000 | U |
| 108-90-7 | Chlorobenzene | 560000 | U |
| 100-41-4 | Ethylbenzene | 930000 | |
| 100-42-5 | Styrene | 560000 | U |
| 1330-20-7 | Xylene (total) | 4600000 | |

CLIENT SAMPLE NO.

ACS-SB110SS4-7'-9'

Method: SOW 1/91

SDG No.: 01511

Lab Sample ID: 960151101

Lab File ID: 0130E07.D

Date Received: 01/25/96

Date Analyzed: 01/30/96

Dilution Factor: 400.0

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB118SS3-6'-8'

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212404

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E07.D

Level: (low/med) MED

Date Received: 02/01/96

% Moisture: not dec. 13

Date Analyzed: 02/10/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 200.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|---------|---|
| 74-87-3 | Chloromethane | 280000 | U |
| 74-83-9 | Bromomethane | 280000 | U |
| 75-01-4 | Vinyl Chloride | 280000 | U |
| 75-00-3 | Chloroethane | 280000 | U |
| 75-09-2 | Methylene Chloride | 280000 | U |
| -64-1 | Acetone | 230000 | J |
| 15-0 | Carbon Disulfide | 280000 | U |
| 75-35-4 | 1,1-Dichloroethene | 280000 | U |
| 75-34-3 | 1,1-Dichloroethane | 280000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 280000 | U |
| 67-66-3 | Chloroform | 280000 | U |
| 107-06-2 | 1,2-Dichloroethane | 280000 | U |
| 78-93-3 | 2-Butanone | 280000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 280000 | U |
| 5023-5 | Carbon Tetrachloride | 280000 | U |
| 75-27-4 | Bromodichloromethane | 280000 | U |
| 78-87-5 | 1,2-Dichloropropane | 280000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 280000 | U |
| 79-01-6 | Trichloroethene | 80000 | J |
| 124-48-1 | Dibromochloromethane | 280000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 280000 | U |
| 71-43-2 | Benzene | 280000 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 280000 | U |
| 75-25-2 | Bromoform | 280000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 280000 | U |
| 591-78-6 | 2-Hexanone | 280000 | U |
| 127-18-4 | Tetrachloroethene | 360000 | |
| 108-88-3 | Toluene | 3800000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 280000 | U |
| 108-90-7 | Chlorobenzene | 280000 | U |
| 100-41-4 | Ethylbenzene | 1000000 | |
| 100-42-5 | Styrene | 280000 | U |
| 1330-20-7 | Xylene (total) | 4500000 | |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB118SS3-6'-8'

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212404

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E07.D

Level: (low/med) MED

Date Received: 02/01/96

% Moisture: not dec. 13

Date Analyzed: 02/10/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 200.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|---------|---|
| 74-87-3 | Chloromethane | 280000 | U |
| 74-83-9 | Bromomethane | 280000 | U |
| 75-01-4 | Vinyl Chloride | 280000 | U |
| 75-00-3 | Chloroethane | 280000 | U |
| 75-09-2 | Methylene Chloride | 280000 | U |
| 7-64-1 | Acetone | 130000 | J |
| 5-15-0 | Carbon Disulfide | 280000 | U |
| 75-35-4 | 1,1-Dichloroethene | 280000 | U |
| 75-34-3 | 1,1-Dichloroethane | 280000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 280000 | U |
| 67-66-3 | Chloroform | 280000 | U |
| 107-06-2 | 1,2-Dichloroethane | 280000 | U |
| 78-93-3 | 2-Butanone | 53000 | J |
| 71-55-6 | 1,1,1-Trichloroethane | 38000 | J |
| 56-23-5 | Carbon Tetrachloride | 280000 | U |
| 75-27-4 | Bromodichloromethane | 280000 | U |
| 78-87-5 | 1,2-Dichloropropane | 280000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 280000 | U |
| 79-01-6 | Trichloroethene | 80000 | J |
| 124-48-1 | Dibromochloromethane | 280000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 43000 | J |
| 71-43-2 | Benzene | 280000 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 280000 | U |
| 75-25-2 | Bromoform | 280000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 280000 | U |
| 591-78-6 | 2-Hexanone | 90000 | J |
| 127-18-4 | Tetrachloroethene | 360000 | |
| 108-88-3 | Toluene | 3800000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 280000 | U |
| 108-90-7 | Chlorobenzene | 280000 | U |
| 100-41-4 | Ethylbenzene | 1000000 | |
| 100-42-5 | Styrene | 34000 | J |
| 1330-20-7 | Xylene (total) | 4500000 | |

CLIENT SAMPLE NO.

ACS-SB118SS3-6'-8'

Method: SOW 1/91

SDG No.: 01511

Lab Sample ID: 960212404

Lab File ID: 0210E07.D

Date Received: 02/01/96

Date Analyzed: 02/10/96

Dilution Factor: 200.0

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB119SS3-6'-8'

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212405

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E12.D

Level: (low/med) MED

Date Received: 02/01/96

% Moisture: not dec. 12

Date Analyzed: 02/11/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 100.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|---------|---|
| 74-87-3 | Chloromethane | 140000 | U |
| 74-83-9 | Bromomethane | 140000 | U |
| 75-01-4 | Vinyl Chloride | 140000 | U |
| 75-00-3 | Chloroethane | 140000 | U |
| 75-09-2 | Methylene Chloride | 140000 | U |
| -64-1 | Acetone | 140000 | U |
| -15-0 | Carbon Disulfide | 140000 | U |
| 75-35-4 | 1,1-Dichloroethene | 140000 | U |
| 75-34-3 | 1,1-Dichloroethane | 140000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 47000 | J |
| 67-66-3 | Chloroform | 140000 | U |
| 107-06-2 | 1,2-Dichloroethane | 140000 | U |
| 78-93-3 | 2-Butanone | 140000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 140000 | U |
| 56-23-5 | Carbon Tetrachloride | 140000 | U |
| 75-27-4 | Bromodichloromethane | 140000 | U |
| 78-87-5 | 1,2-Dichloropropane | 140000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 140000 | U |
| 79-01-6 | Trichloroethene | 140000 | U |
| 124-48-1 | Dibromochloromethane | 140000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 140000 | U |
| 71-43-2 | Benzene | 41000 | J |
| 10061-02-6 | Trans-1,3-Dichloropropene | 140000 | U |
| 75-25-2 | Bromoform | 140000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 140000 | U |
| 591-78-6 | 2-Hexanone | 140000 | U |
| 127-18-4 | Tetrachloroethene | 50000 | J |
| 108-88-3 | Toluene | 1600000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 140000 | U |
| 108-90-7 | Chlorobenzene | 140000 | U |
| 100-41-4 | Ethylbenzene | 590000 | |
| 100-42-5 | Styrene | 140000 | U |
| 1330-20-7 | Xylene (total) | 3000000 | |

CLIENT SAMPLE NO.

Lab Name: IEA-NC

La.. Code: IEA

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212405

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E12.D

Level: (low/med) MED

Date Received: 02/01/96

% Moisture: not dec. 12

Date Analyzed: 02/11/96

GC Column: DB-624 ID: .53 (mm)

Dilution Factor: 100.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100 (uL)

Number TICs Found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBK54

Lab Name: IEA-NC

Method: SOW 1/91

La. Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: VBK54

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E02.D

Level: (low/med) MED

Date Received:

% Moisture: not dec. 0

Date Analyzed: 02/10/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg)

ug/kg

Q

| | | | |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 1200 | U |
| 74-83-9 | Bromomethane | 1200 | U |
| 75-01-4 | Vinyl Chloride | 1200 | U |
| 75-00-3 | Chloroethane | 1200 | U |
| 75-09-2 | Methylene Chloride | 1200 | U |
| -64-1 | Acetone | 1200 | U |
| -15-0 | Carbon Disulfide | 1200 | U |
| 75-35-4 | 1,1-Dichloroethene | 1200 | U |
| 75-34-3 | 1,1-Dichloroethane | 1200 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 1200 | U |
| 67-66-3 | Chloroform | 1200 | U |
| 107-06-2 | 1,2-Dichloroethane | 1200 | U |
| 78-93-3 | 2-Butanone | 1200 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 1200 | U |
| 56-23-5 | Carbon Tetrachloride | 1200 | U |
| 75-27-4 | Bromodichloromethane | 1200 | U |
| 78-87-5 | 1,2-Dichloropropane | 1200 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 1200 | U |
| 79-01-6 | Trichloroethene | 1200 | U |
| 124-48-1 | Dibromochloromethane | 1200 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 1200 | U |
| 71-43-2 | Benzene | 1200 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 1200 | U |
| 75-25-2 | Bromoform | 1200 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1200 | U |
| 591-78-6 | 2-Hexanone | 1200 | U |
| 127-18-4 | Tetrachloroethene | 1200 | U |
| 108-88-3 | Toluene | 1200 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1200 | U |
| 108-90-7 | Chlorobenzene | 1200 | U |
| 100-41-4 | Ethylbenzene | 1200 | U |
| 100-42-5 | Styrene | 1200 | U |
| 1330-20-7 | Xylene (total) | 1200 | U |

CLIENT SAMPLE NO.

VBLK54

Method: SOW 1/91

SDG No.: 01511

Lab Sample ID: VBLK54

Lab File ID: 0210E02.D

Date Received:

Date Analyzed: 02/10/96

Dilution Factor: 1.0

Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5M

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: VBLK5M

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0130E03.D

Level: (low/med) MED

Date Received:

% Moisture: not dec. 0

Date Analyzed: 01/30/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 1200 | U |
| 74-83-9 | Bromomethane | 1200 | U |
| 75-01-4 | Vinyl Chloride | 1200 | U |
| 75-00-3 | Chloroethane | 1200 | U |
| 75-09-2 | Methylene Chloride | 1200 | U |
| 64-1 | Acetone | 1200 | U |
| 15-0 | Carbon Disulfide | 1200 | U |
| 75-35-4 | 1,1-Dichloroethene | 1200 | U |
| 75-34-3 | 1,1-Dichloroethane | 1200 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 1200 | U |
| 67-66-3 | Chloroform | 1200 | U |
| 107-06-2 | 1,2-Dichloroethane | 1200 | U |
| 78-93-3 | 2-Butanone | 1200 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 1200 | U |
| 56-23-5 | Carbon Tetrachloride | 1200 | U |
| 75-27-4 | Bromodichloromethane | 1200 | U |
| 78-87-5 | 1,2-Dichloropropane | 1200 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 1200 | U |
| 79-01-6 | Trichloroethene | 1200 | U |
| 124-48-1 | Dibromochloromethane | 1200 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 1200 | U |
| 71-43-2 | Benzene | 1200 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 1200 | U |
| 75-25-2 | Bromoform | 1200 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1200 | U |
| 591-78-6 | 2-Hexanone | 1200 | U |
| 127-18-4 | Tetrachloroethene | 1200 | U |
| 108-88-3 | Toluene | 1200 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1200 | U |
| 108-90-7 | Chlorobenzene | 1200 | U |
| 100-41-4 | Ethylbenzene | 1200 | U |
| 100-42-5 | Styrene | 1200 | U |
| 1330-20-7 | Xylene (total) | 1200 | U |

CLIENT SAMPLE NO.

VBLK5M

SDG No.: 01511

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB118SS3-6'-8'MS

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212404MS

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E09.D

Level: (low/med) MED

Date Received: 02/01/96

% Moisture: not dec. 13

Date Analyzed: 02/10/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 200.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|---------|---|
| 74-87-3 | Chloromethane | 280000 | U |
| 74-83-9 | Bromomethane | 280000 | U |
| 75-01-4 | Vinyl Chloride | 280000 | U |
| 75-00-3 | Chloroethane | 280000 | U |
| 75-09-2 | Methylene Chloride | 280000 | U |
| -64-1 | Acetone | 280000 | U |
| -15-0 | Carbon Disulfide | 280000 | U |
| 75-35-4 | 1,1-Dichloroethene | 280000 | U |
| 75-34-3 | 1,1-Dichloroethane | 280000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 280000 | U |
| 67-66-3 | Chloroform | 280000 | U |
| 107-06-2 | 1,2-Dichloroethane | 280000 | U |
| 78-93-3 | 2-Butanone | 280000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 280000 | U |
| 56-23-5 | Carbon Tetrachloride | 280000 | U |
| 75-27-4 | Bromodichloromethane | 280000 | U |
| 78-87-5 | 1,2-Dichloropropane | 280000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 280000 | U |
| 79-01-6 | Trichloroethene | 90000 | J |
| 124-48-1 | Dibromochloromethane | 280000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 280000 | U |
| 71-43-2 | Benzene | 280000 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 280000 | U |
| 75-25-2 | Bromoform | 280000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 280000 | U |
| 591-78-6 | 2-Hexanone | 280000 | U |
| 127-18-4 | Tetrachloroethene | 390000 | |
| 108-88-3 | Toluene | 4100000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 280000 | U |
| 108-90-7 | Chlorobenzene | 280000 | U |
| 100-41-4 | Ethylbenzene | 1100000 | |
| 100-42-5 | Styrene | 280000 | U |
| 1330-20-7 | Xylene (total) | 5000000 | |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB118SS3-6'-8'MSD

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212404MSD

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0210E10.D

Level: (low/med) MED

Date Received: 02/01/96

% Moisture: not dec. 13

Date Analyzed: 02/10/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 200.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|---------|---|
| 74-87-3 | Chloromethane | 280000 | U |
| 74-83-9 | Bromomethane | 280000 | U |
| 75-01-4 | Vinyl Chloride | 280000 | U |
| 75-00-3 | Chloroethane | 280000 | U |
| 75-09-2 | Methylene Chloride | 280000 | U |
| -64-1 | Acetone | 280000 | U |
| -15-0 | Carbon Disulfide | 280000 | U |
| 75-35-4 | 1,1-Dichloroethene | 280000 | U |
| 75-34-3 | 1,1-Dichloroethane | 280000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 280000 | U |
| 67-66-3 | Chloroform | 280000 | U |
| 107-06-2 | 1,2-Dichloroethane | 280000 | U |
| 78-93-3 | 2-Butanone | 280000 | U |
| -55-6 | 1,1,1-Trichloroethane | 280000 | U |
| -23-5 | Carbon Tetrachloride | 280000 | U |
| 75-27-4 | Bromodichloromethane | 280000 | U |
| 78-87-5 | 1,2-Dichloropropane | 280000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 280000 | U |
| 79-01-6 | Trichloroethene | 90000 | J |
| 124-48-1 | Dibromochloromethane | 280000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 280000 | U |
| 71-43-2 | Benzene | 280000 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 280000 | U |
| 75-25-2 | Bromoform | 280000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 280000 | U |
| 591-78-6 | 2-Hexanone | 280000 | U |
| 127-18-4 | Tetrachloroethene | 370000 | |
| 108-88-3 | Toluene | 4000000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 280000 | U |
| 108-90-7 | Chlorobenzene | 280000 | U |
| 100-41-4 | Ethylbenzene | 1100000 | |
| 100-42-5 | Styrene | 280000 | U |
| 1330-20-7 | Xylene (total) | 4800000 | |

2B
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

I Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Level: (low/med) MED

| | CLIENT SAMPLE NO. | SMC1 (TOL) # | SMC2 (BFB) # | SMC3 (DCE) # | OTHER | TOT OUT |
|----|-----------------------|-----------------|-----------------|-----------------|-------|------------|
| 01 | VLK5M | 99 | 97 | 96 | | 0 |
| 02 | ACS-SB110SS4-7'-9' | 96D | 97D | 96D | | 0 |
| 03 | VLK54 | 101 | 97 | 93 | | 0 |
| 04 | ACS-SB118SS3-6'-8' | 100D | 98D | 96D | | 0 |
| 05 | ACS-SB118SS3-6'-8'MS | 101D | 98D | 96D | | 0 |
| 06 | ACS-SB118SS3-6'-8'MSD | 101D | 97D | 96D | | 0 |
| 07 | ACS-SB119SS3-6'-8' | 101D | 100D | 95D | | 0 |
| 08 | | | | | | |
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QC LIMITS

SMC1 (TOL) = Toluene-d8 (84-138)
 SMC2 (BFB) = Bromofluorobenzene (59-113)
 SMC3 (DCE) = 1,2-Dichloroethane-d4 (70-121)

Column to be used to flag recovery values

* Values outside of QC limits.

D System Monitoring Compound diluted out

3B
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix Spike - Client Sample No.: ACS-SB118SS3-6'-8' Level:(low/med) MED

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC. LIMITS REC. |
|--------------------|---------------------------|------------------------------------|--------------------------------|------------------|-----------------------|
| 1,1-Dichloroethene | 7200 | 0 | 0 | 0 D | 59-172 |
| Trichloroethene | 7200 | 80000 | 90000 | 139 D | 62-137 |
| Benzene | 7200 | 0 | 0 | 0 D | 66-142 |
| Toluene | 7200 | 3800000 | 4100000 | 4167 D | 59-139 |
| Chlorobenzene | 7200 | 0 | 0 | 0 D | 60-133 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD # | QC LIMITS | |
|--------------------|---------------------------|---------------------------------|-------------------|------------|-----------|--------|
| | | | | | RPD | REC. |
| 1,1-Dichloroethene | 7200 | 0 | 0 D | 0 | 22 | 59-172 |
| Trichloroethene | 7200 | 90000 | 139 D | 0 | 24 | 62-137 |
| Benzene | 7200 | 0 | 0 D | 0 | 21 | 66-142 |
| Toluene | 7200 | 4000000 | 2778 D | 40* | 21 | 59-139 |
| Chlorobenzene | 7200 | 0 | 0 D | 0 | 21 | 60-133 |

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits.

D Spike compound diluted out.

RPD: 1 out of 5 outside limits

Spike Recovery: 10 out of 10 outside limits

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBK54

I Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Lab File ID: 0210E02.D

Lab Sample ID: VBK54

Date Analyzed: 02/10/96

Time Analyzed: 16:13

GC Column: DB-624 ID: .53(mm)

Heated Purge: (Y/N) N

Instrument ID: MSD5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | CLIENT SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|----|-----------------------|------------------|----------------|------------------|
| 01 | ACS-SB118SS3-6'-8' | 960212404 | 0210E07.D | 20:42 |
| 02 | ACS-SB118SS3-6'-8'MS | 960212404MS | 0210E09.D | 22:04 |
| 03 | ACS-SB118SS3-6'-8'MSD | 960212404MSD | 0210E10.D | 22:44 |
| 04 | ACS-SB119SS3-6'-8' | 960212405 | 0210E12.D | 00:06 |
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COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLK5M

L Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Lab File ID: 0130E03.D

Lab Sample ID: VBLK5M

Date Analyzed: 01/30/96

Time Analyzed: 19:17

GC Column: DB-624

ID: .53(mm)

Heated Purge: (Y/N) N

Instrument ID: MSD5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | CLIENT SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|----|----------------------|------------------|----------------|------------------|
| 01 | ACS-SB110SS4-7'-9' | 960151101 | 0130E07.D | 22:26 |
| 02 | | | | |
| 03 | | | | |
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COMMENTS:

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-126

SDG No.: 01511

Lab File ID (Standard): 0210E01.D

Date Analyzed: 02/10/96

Instrument ID: MSD5

Time Analyzed: 15:15

C Column: DB-624

ID: .53(mm)

Heated Purge: (Y/N) N

| | IS1(BCM) AREA # | RT # | IS2(DFB) AREA # | RT # | IS3(CBZ) AREA # | RT # |
|--------------------------|--------------------|-------|--------------------|-------|--------------------|-------|
| 12 HOUR STD | 1920768 | 10.28 | 7337000 | 12.47 | 6129399 | 18.76 |
| UPPER LIMIT | 3841536 | 10.78 | 14674000 | 12.97 | 12258798 | 19.26 |
| LOWER LIMIT | 960384 | 9.78 | 3668500 | 11.97 | 3064700 | 18.26 |
| EPA SAMPLE NO. | | | | | | |
| 1 VBLK54 | 2092039 | 10.26 | 8294178 | 12.45 | 7048406 | 18.76 |
| 2 ACS-SB118SS3-6'-8' | 1874453 | 10.26 | 7269201 | 12.45 | 6280866 | 18.75 |
| 3 ACS-SB118SS3-6'-8' MS | 1877308 | 10.28 | 7200384 | 12.46 | 6075167 | 18.76 |
| 4 ACS-SB118SS3-6'-8' MSD | 1900638 | 10.24 | 7418966 | 12.43 | 6346631 | 18.74 |
| 5 ACS-SB119SS3-6'-8' | 2006674 | 10.26 | 7889737 | 12.45 | 6719501 | 18.75 |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 0 | | | | | | |
| 1 | | | | | | |
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| 0 | | | | | | |
| 1 | | | | | | |
| 2 | | | | | | |

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: IEA-NC

Method: SOW 1/91

L Code: IEA

Case No.: 1589-126

SDG No.: 01511

Lab File ID (Standard): 0130E01S.D

Date Analyzed: 01/30/96

Instrument ID: MSD5

Time Analyzed: 17:27

GC Column: DB-624

ID: .53(mm)

Heated Purge: (Y/N) N

| | IS1(BCM) AREA # | RT # | IS2(DFB) AREA # | RT # | IS3(CBZ) AREA # | RT # |
|-----------------------|--------------------|-------|--------------------|-------|--------------------|-------|
| 12 HOUR STD | 1314981 | 10.32 | 4794436 | 12.49 | 4007378 | 18.75 |
| UPPER LIMIT | 2629962 | 10.82 | 9588872 | 12.99 | 8014756 | 19.25 |
| LOWER LIMIT | 657490 | 9.82 | 2397218 | 11.99 | 2003689 | 18.25 |
| EPA SAMPLE | | | | | | |
| 0. | | | | | | |
| 01 VBLK5M | 1388863 | 10.31 | 5194364 | 12.47 | 4249853 | 18.74 |
| 02 ACS-SB110SS4-7'-9' | 1371388 | 10.24 | 5210191 | 12.43 | 4408710 | 18.73 |
| 03 | | | | | | |
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IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

135155

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

L Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212410

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: P1021496_059.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/17/96

Injection Volume: 1.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.9

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | | |
|-----------------|--------------|------|---|
| 12674-11-2----- | Aroclor-1016 | 370 | U |
| 11104-28-2----- | Aroclor-1221 | 760 | U |
| 11141-16-5----- | Aroclor-1232 | 370 | U |
| 53469-21-9----- | Aroclor-1242 | 370 | U |
| 12672-29-6----- | Aroclor-1248 | 3200 | |
| 11097-69-1----- | Aroclor-1254 | 370 | U |
| 11096-82-5----- | Aroclor-1260 | 370 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

135155DL

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

I Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212410DL

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: P1021496_104.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/20/96

Injection Volume: 1.0(uL)

Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 6.9

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|----|
| 12674-11-2-----Aroclor-1016 | 3700 | U |
| 11104-28-2-----Aroclor-1221 | 7600 | U |
| 11141-16-5-----Aroclor-1232 | 3700 | U |
| 53469-21-9-----Aroclor-1242 | 3700 | U |
| 12672-29-6-----Aroclor-1248 | 2700 | DJ |
| 11097-69-1-----Aroclor-1254 | 3700 | U |
| 11096-82-5-----Aroclor-1260 | 3700 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS479

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960151103

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_187.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/13/96

Injection Volume: 1.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.4

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 380 | U |
| 11104-28-2-----Aroclor-1221 | 760 | U |
| 11141-16-5-----Aroclor-1232 | 380 | U |
| 53469-21-9-----Aroclor-1242 | 3300 | |
| 12672-29-6-----Aroclor-1248 | 380 | U |
| 11097-69-1-----Aroclor-1254 | 650 | P |
| 11096-82-5-----Aroclor-1260 | 380 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS479DL

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Code: IEA

Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960151103DL

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_186.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/13/96

Injection Volume: 1.0(uL)

Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 7.4

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|-----|
| 12674-11-2-----Aroclor-1016 | 3800 | U |
| 11104-28-2-----Aroclor-1221 | 7600 | U |
| 11141-16-5-----Aroclor-1232 | 3800 | U |
| 53469-21-9-----Aroclor-1242 | 3600 | DJ |
| 12672-29-6-----Aroclor-1248 | 3800 | U |
| 11097-69-1-----Aroclor-1254 | 530 | DJP |
| 11096-82-5-----Aroclor-1260 | 3800 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

485105

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212406

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_060.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/17/96

Injection Volume: 1.0(uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 7.5

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 75 | U |
| 11104-28-2-----Aroclor-1221 | 150 | U |
| 11141-16-5-----Aroclor-1232 | 75 | U |
| 53469-21-9-----Aroclor-1242 | 75 | U |
| 12672-29-6-----Aroclor-1248 | 2200 | P |
| 11097-69-1-----Aroclor-1254 | 1200 | P |
| 11096-82-5-----Aroclor-1260 | 340 | P |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

485105DL

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212406DL

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_044.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 20.0

SPC Cleanup: (Y/N) Y pH: 7.5

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|-----|
| 12674-11-2-----Aroclor-1016 | 750 | U |
| 11104-28-2-----Aroclor-1221 | 1500 | U |
| 11141-16-5-----Aroclor-1232 | 750 | U |
| 53469-21-9-----Aroclor-1242 | 750 | U |
| 12672-29-6-----Aroclor-1248 | 3700 | D |
| 11097-69-1-----Aroclor-1254 | 1900 | DP |
| 11096-82-5-----Aroclor-1260 | 510 | DJP |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

7SS368

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212407

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P1021496_046.D

% Moisture: 27 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 5.9

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|-------|---|
| 12674-11-2-----Aroclor-1016 | 900 | U |
| 11104-28-2-----Aroclor-1221 | 1800 | U |
| 11141-16-5-----Aroclor-1232 | 900 | U |
| 53469-21-9-----Aroclor-1242 | 900 | U |
| 12672-29-6-----Aroclor-1248 | 900 | U |
| 11097-69-1-----Aroclor-1254 | 35000 | |
| 11096-82-5-----Aroclor-1260 | 900 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

7SS368DL

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

L Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212407DL

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P1021496_040.D

% Moisture: 27 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 200.0

GPC Cleanup: (Y/N) Y pH: 5.9

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | | |
|-----------------|--------------|-------|---|
| 12674-11-2----- | Aroclor-1016 | 9000 | U |
| 11104-28-2----- | Aroclor-1221 | 18000 | U |
| 11141-16-5----- | Aroclor-1232 | 9000 | U |
| 53469-21-9----- | Aroclor-1242 | 9000 | U |
| 12672-29-6----- | Aroclor-1248 | 9000 | U |
| 11097-69-1----- | Aroclor-1254 | 44000 | D |
| 11096-82-5----- | Aroclor-1260 | 9000 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

8SS368

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212408

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P1021496_047.D

% Moisture: 20 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 6.7

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 820 | U |
| 11104-28-2-----Aroclor-1221 | 1700 | U |
| 11141-16-5-----Aroclor-1232 | 820 | U |
| 53469-21-9-----Aroclor-1242 | 820 | U |
| 12672-29-6-----Aroclor-1248 | 820 | U |
| 11097-69-1-----Aroclor-1254 | 7500 | P |
| 11096-82-5-----Aroclor-1260 | 7300 | P |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

8SS368DL

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212408DL

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P1021496_041.D

% Moisture: 20 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 200.0

GPC Cleanup: (Y/N) Y pH: 6.7

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|-------|---|
| 12674-11-2-----Aroclor-1016 | 8200 | U |
| 11104-28-2-----Aroclor-1221 | 17000 | U |
| 11141-16-5-----Aroclor-1232 | 8200 | U |
| 53469-21-9-----Aroclor-1242 | 8200 | U |
| 12672-29-6-----Aroclor-1248 | 8200 | U |
| 11097-69-1-----Aroclor-1254 | 12000 | D |
| 11096-82-5-----Aroclor-1260 | 12000 | D |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S51113

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212409

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_061.D

Moisture: 11 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/17/96

Injection Volume: 1.0(uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 8.1

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 74 | U |
| 11104-28-2-----Aroclor-1221 | 150 | U |
| 11141-16-5-----Aroclor-1232 | 74 | U |
| 53469-21-9-----Aroclor-1242 | 74 | U |
| 12672-29-6-----Aroclor-1248 | 1200 | P |
| 11097-69-1-----Aroclor-1254 | 760 | P |
| 11096-82-5-----Aroclor-1260 | 74 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S51113DL

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212409DL

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_045.D

% Moisture: 11 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 20.0

GPC Cleanup: (Y/N) Y pH: 8.1

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|-----|
| 12674-11-2-----Aroclor-1016 | 740 | U |
| 11104-28-2-----Aroclor-1221 | 1500 | U |
| 11141-16-5-----Aroclor-1232 | 740 | U |
| 53469-21-9-----Aroclor-1242 | 740 | U |
| 12672-29-6-----Aroclor-1248 | 1600 | D |
| 11097-69-1-----Aroclor-1254 | 710 | DJP |
| 11096-82-5-----Aroclor-1260 | 740 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S51113MS

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212409MS

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_062.D

% Moisture: 11 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/17/96

Injection Volume: 1.0(uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 8.1

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 74 | U |
| 11104-28-2-----Aroclor-1221 | 150 | U |
| 11141-16-5-----Aroclor-1232 | 74 | U |
| 53469-21-9-----Aroclor-1242 | 74 | U |
| 12672-29-6-----Aroclor-1248 | 990 | P |
| 11097-69-1-----Aroclor-1254 | 1300 | P |
| 11096-82-5-----Aroclor-1260 | 74 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S51113MSD

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

I Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212409MSD

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_063.D

% Moisture: 11 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/17/96

Injection Volume: 1.0(uL)

Dilution Factor: 2.0

GPC Cleanup: (Y/N) Y pH: 8.1

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 74 | U |
| 11104-28-2-----Aroclor-1221 | 150 | U |
| 11141-16-5-----Aroclor-1232 | 74 | U |
| 53469-21-9-----Aroclor-1242 | 74 | U |
| 12672-29-6-----Aroclor-1248 | 1000 | P |
| 11097-69-1-----Aroclor-1254 | 1100 | P |
| 11096-82-5-----Aroclor-1260 | 74 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SS368D

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212411

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: P1021496_058.D

% Moisture: 16 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/17/96

Injection Volume: 1.0(uL)

Dilution Factor: 20.0

SPC Cleanup: (Y/N) Y pH: 7.8

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | | |
|-----------------|--------------|------|---|
| 12674-11-2----- | Aroclor-1016 | 780 | U |
| 11104-28-2----- | Aroclor-1221 | 1600 | U |
| 11141-16-5----- | Aroclor-1232 | 780 | U |
| 53469-21-9----- | Aroclor-1242 | 780 | U |
| 12672-29-6----- | Aroclor-1248 | 780 | U |
| 11097-69-1----- | Aroclor-1254 | 4200 | P |
| 11096-82-5----- | Aroclor-1260 | 3100 | |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SS368DDL

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

I Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960212411DL

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: P1021496_042.D

% Moisture: 16 decanted: (Y/N) N

Date Received: 02/01/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 200.0

GPC Cleanup: (Y/N) Y pH: 7.8

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

| | | |
|-----------------------------|-------|-----|
| 12674-11-2-----Aroclor-1016 | 7800 | U |
| 11104-28-2-----Aroclor-1221 | 16000 | U |
| 11141-16-5-----Aroclor-1232 | 7800 | U |
| 53469-21-9-----Aroclor-1242 | 7800 | U |
| 12672-29-6-----Aroclor-1248 | 7800 | U |
| 11097-69-1-----Aroclor-1254 | 4600 | DJP |
| 11096-82-5-----Aroclor-1260 | 3700 | DJ |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SS5911

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Mix: (soil/water) SOIL

Lab Sample ID: 960151102

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_189.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/13/96

Injection Volume: 1.0(uL)

Dilution Factor: 50.0

GPC Cleanup: (Y/N) Y pH: 7.6

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 1900 | U |
| 11104-28-2-----Aroclor-1221 | 3800 | U |
| 11141-16-5-----Aroclor-1232 | 1900 | U |
| 53469-21-9-----Aroclor-1242 | 1900 | U |
| 12672-29-6-----Aroclor-1248 | 3000 | P |
| 11097-69-1-----Aroclor-1254 | 4500 | P |
| 11096-82-5-----Aroclor-1260 | 1900 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SS5911DL

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960151102DL

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_188.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/13/96

Injection Volume: 1.0(uL)

Dilution Factor: 500.0

GPC Cleanup: (Y/N) Y pH: 7.6

Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Q

| | | |
|-----------------------------|-------|-----|
| 12674-11-2-----Aroclor-1016 | 19000 | U |
| 11104-28-2-----Aroclor-1221 | 38000 | U |
| 11141-16-5-----Aroclor-1232 | 19000 | U |
| 53469-21-9-----Aroclor-1242 | 19000 | U |
| 12672-29-6-----Aroclor-1248 | 3400 | DJP |
| 11097-69-1-----Aroclor-1254 | 5700 | DJP |
| 11096-82-5-----Aroclor-1260 | 19000 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SS5911MS

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: 960151102MS

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_192.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/13/96

Injection Volume: 1.0(uL)

Dilution Factor: 50.0

GPC Cleanup: (Y/N) Y pH: 7.6

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 1900 | U |
| 11104-28-2-----Aroclor-1221 | 3800 | U |
| 11141-16-5-----Aroclor-1232 | 1900 | U |
| 53469-21-9-----Aroclor-1242 | 1900 | U |
| 12672-29-6-----Aroclor-1248 | 4000 | P |
| 11097-69-1-----Aroclor-1254 | 5700 | P |
| 11096-82-5-----Aroclor-1260 | 1900 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SS5911MSD

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Mix: (soil/water) SOIL

Lab Sample ID: 960151102MSD

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_193.D

% Moisture: 12 decanted: (Y/N) N

Date Received: 01/25/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/14/96

Injection Volume: 1.0(uL)

Dilution Factor: 50.0

GPC Cleanup: (Y/N) Y pH: 7.6

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 1900 | U |
| 11104-28-2-----Aroclor-1221 | 3800 | U |
| 11141-16-5-----Aroclor-1232 | 1900 | U |
| 53469-21-9-----Aroclor-1242 | 1900 | U |
| 12672-29-6-----Aroclor-1248 | 3400 | P |
| 11097-69-1-----Aroclor-1254 | 4900 | P |
| 11096-82-5-----Aroclor-1260 | 1900 | U |

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

GC Column(1): RTX-35 ID: 0.53 (mm) GC Column(2): DB-1701 ID: 0.53 (mm)

| | CLIENT SAMPLE NO. | TCX 1 %REC # | TCX 2 %REC # | DCB 1 %REC # | DCB 2 %REC # | OTHER (1) | OTHER (2) | TOT OUT |
|----|----------------------|-----------------|-----------------|-----------------|-----------------|--------------|--------------|------------|
| 01 | 135155 | 11D | 5D | 26D | 39D | | | 0 |
| 02 | 135155DL | 0D | 0D | 0D | 0D | | | 0 |
| 03 | 485105 | 52D | 27D | 56D | 47D | | | 0 |
| 04 | 485105DL | 0D | 0D | 0D | 0D | | | 0 |
| 05 | 7SS368 | 0D | 0D | 0D | 0D | | | 0 |
| 06 | 7SS368DL | 0D | 0D | 0D | 0D | | | 0 |
| 07 | 8SS368 | 0D | 0D | 0D | 0D | | | 0 |
| 08 | 8SS368DL | 0D | 0D | 0D | 0D | | | 0 |
| 09 | PBLK92 | 94 | 93 | 101 | 93 | | | 0 |
| 10 | S51113 | 67 | 35D | 59D | 115 | | | 0 |
| 11 | S51113DL | 0D | 0D | 0D | 0D | | | 0 |
| 12 | S51113MS | 55D | 26D | 48D | 354D | | | 0 |
| 13 | S51113MSD | 54D | 25D | 48D | 338D | | | 0 |
| 14 | SS368D | 0D | 0D | 0D | 0D | | | 0 |
| 15 | SS368DDL | 0D | 0D | 0D | 0D | | | 0 |
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| 30 | | | | | | | | |

ADVISORY
QC LIMITS

TCX = Tetrachloro-m-xylene (60-150)
DCB = Decachlorobiphenyl (60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

GC Column(1): DB-1701 ID: 0.53 (mm) GC Column(2): RTX-35 ID: 0.53 (mm)

| | CLIENT SAMPLE NO. | TCX 1 %REC # | TCX 2 %REC # | DCB 1 %REC # | DCB 2 %REC # | OTHER (1) | OTHER (2) | TOT OUT |
|----|----------------------|-----------------|-----------------|-----------------|-----------------|--------------|--------------|------------|
| 01 | 3SS479 | 10D | 13D | 16D | 0D | | | 0 |
| 02 | 3SS479DL | 0D | 0D | 0D | 0D | | | 0 |
| 03 | PBLK82 | 88 | 111 | 80 | 123 | | | 0 |
| 04 | SS5911 | 0D | 0D | 0D | 0D | | | 0 |
| 05 | SS5911DL | 0D | 0D | 0D | 0D | | | 0 |
| 06 | SS5911MS | 0D | 0D | 0D | 0D | | | 0 |
| 07 | SS5911MSD | 0D | 0D | 0D | 0D | | | 0 |
| 08 | | | | | | | | |
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| 30 | | | | | | | | |

ADVISORY
QC LIMITS

TCX = Tetrachloro-m-xylene (60-150)
DCB = Decachlorobiphenyl (60-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

3F
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix Spike - Client Sample No.: S51113

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC. LIMITS REC. |
|--------------|---------------------------|------------------------------------|--------------------------------|------------------|-----------------------|
| Aroclor-1260 | 370 | 0.0 | 0.0 | 0* | 60-140 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD # | QC LIMITS RPD | REC. |
|--------------|---------------------------|---------------------------------|-------------------|------------|------------------|--------|
| Aroclor-1260 | 370 | 0.0 | 0* | 0 | 40 | 60-140 |

* Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 2 out of 2 outside limits

COMMENTS:

3F
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix Spike - Client Sample No.: SS5911

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC. LIMITS REC. |
|--------------|---------------------------|------------------------------------|--------------------------------|------------------|-----------------------|
| Aroclor-1260 | 380 | 0.0 | 0.0 | 0* | 60-140 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD # | QC LIMITS RPD | REC. |
|--------------|---------------------------|---------------------------------|-------------------|------------|------------------|--------|
| Aroclor-1260 | 380 | 0.0 | 0* | 0 | 40 | 60-140 |

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits

Spike Recovery: 2 out of 2 outside limits

COMMENTS:

4C
PESTICIDE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

PBLK82

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Lab Sample ID: PBLK82

Lab File ID: P2020196_148.D

Matrix:(soil/water) SOIL

Extraction:(SepF,Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) N

Date Extracted: 02/01/96

Date Analyzed (1): 02/10/96

Date Analyzed (2): 02/15/96

Time Analyzed (1): 2327

Time Analyzed (2): 2209

Instrument ID (1): HP5890P2

Instrument ID (2): HP5890P1

GC Column (1):DB-1701 ID: 0.53(mm) GC Column (2):RTX-35 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

| | CLIENT SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|----|----------------------|------------------|--------------------|--------------------|
| 01 | 3SS479 | 960151103 | 02/13/96 | 02/16/96 |
| 02 | 3SS479DL | 960151103DL | 02/13/96 | 02/16/96 |
| 03 | SS5911 | 960151102 | 02/13/96 | 02/16/96 |
| 04 | SS5911DL | 960151102DL | 02/13/96 | 02/15/96 |
| 05 | SS5911MS | 960151102MS | 02/13/96 | 02/16/96 |
| 06 | SS5911MSD | 960151102MSD | 02/14/96 | 02/16/96 |
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COMMENTS:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

PBLK82

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Matrix: (soil/water) SOIL

Lab Sample ID: PBLK82

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P2020196_148.D

% Moisture: 0 decanted: (Y/N) N

Date Received: / /

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/01/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/10/96

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | | |
|-----------------|--------------|----|---|
| 12674-11-2----- | Aroclor-1016 | 33 | U |
| 11104-28-2----- | Aroclor-1221 | 67 | U |
| 11141-16-5----- | Aroclor-1232 | 33 | U |
| 53469-21-9----- | Aroclor-1242 | 33 | U |
| 12672-29-6----- | Aroclor-1248 | 33 | U |
| 11097-69-1----- | Aroclor-1254 | 33 | U |
| 11096-82-5----- | Aroclor-1260 | 33 | U |

4C
PESTICIDE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

PBLK92

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

Lab Sample ID: PBLK92

Lab File ID: P1021496_039.D

Matrix:(soil/water) SOIL

Extraction:(SepF,Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) N

Date Extracted: 02/09/96

Date Analyzed (1): 02/16/96

Date Analyzed (2): 02/17/96

Time Analyzed (1): 1257

Time Analyzed (2): 0926

Instrument ID (1): HP5890P1

Instrument ID (2): HP5890P2

GC Column (1):RTX-35 ID: 0.53(mm) GC Column (2):DB-1701 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

| | CLIENT SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|----|----------------------|------------------|--------------------|--------------------|
| 01 | 135155 | 960212410 | 02/17/96 | 02/23/96 |
| 02 | 135155DL | 960212410DL | 02/20/96 | 02/23/96 |
| 03 | 485105 | 960212406 | 02/17/96 | 02/25/96 |
| 04 | 485105DL | 960212406DL | 02/16/96 | 02/17/96 |
| 05 | 7SS368 | 960212407 | 02/16/96 | 02/17/96 |
| 06 | 7SS368DL | 960212407DL | 02/16/96 | 02/17/96 |
| 07 | 8SS368 | 960212408 | 02/16/96 | 02/23/96 |
| 08 | 8SS368DL | 960212408DL | 02/16/96 | 02/17/96 |
| 09 | S51113 | 960212409 | 02/17/96 | 02/23/96 |
| 10 | S51113DL | 960212409DL | 02/16/96 | 02/17/96 |
| 11 | S51113MS | 960212409MS | 02/17/96 | 02/23/96 |
| 12 | S51113MSD | 960212409MSD | 02/17/96 | 02/23/96 |
| 13 | SS368D | 960212411 | 02/17/96 | 02/23/96 |
| 14 | SS368DDL | 960212411DL | 02/16/96 | 02/17/96 |
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COMMENTS:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

PBLK92

Lab Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-126

SDG No.: 01511

M. ix: (soil/water) SOIL

Lab Sample ID: PBLK92

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P1021496_039.D

% Moisture: 0 decanted: (Y/N) N

Date Received: / /

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/09/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 02/16/96

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|----|---|
| 12674-11-2-----Aroclor-1016 | 33 | U |
| 11104-28-2-----Aroclor-1221 | 67 | U |
| 11141-16-5-----Aroclor-1232 | 33 | U |
| 53469-21-9-----Aroclor-1242 | 33 | U |
| 12672-29-6-----Aroclor-1248 | 33 | U |
| 11097-69-1-----Aroclor-1254 | 33 | U |
| 11096-82-5-----Aroclor-1260 | 33 | U |

IEA Assigned Number Index

Case No.: 1589-126

SDG No.: 01511

| IEA Lab Sample Number | Sample Number | Abbreviated Sample Number |
|-----------------------|--------------------------|------------------------------|
| 9601511-01 | ACS-SB110SS4-7'-9' | OSS479 |
| 9601511-02 | ACS-SB112SS5-9'-11' | SS5911 |
| 9601511-03 | ACS-SB113SS4-7'-9' | 3SS479 |
| 9601511-21 | HB01511 | HB |
| 9602124-04 | ACS-SB118SS3-6'-8' | 8SS368 |
| 9602124-05 | ACS-SB119SS3-6'-8' | 9SS368 |
| 9602124-06 | ACS-SB124SS4-8.5'-10.5' | 485105 |
| 9602124-07 | ACS-SB127SS3-6'-8' | 7SS368 |
| 9602124-08 | ACS-SB128SS3-6'-8' | 8SS368 |
| 9602124-09 | ACS-SB129SS5-11'-13' | S51113 |
| 9602124-10 | ACS-SB214SS6-13.5'-15.5' | 135155 |
| 9602124-11 | ACS-SB128SS3-6'-8' DUP | SS368D |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB142SS3-6'-8'

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230101

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219E03.D

Level: (low/med) MED

Date Received: 02/13/96

% Moisture: not dec. 17

Date Analyzed: 02/19/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 20.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|--------|---|
| 74-87-3 | Chloromethane | 29000 | U |
| 74-83-9 | Bromomethane | 29000 | U |
| 75-01-4 | Vinyl Chloride | 29000 | U |
| 75-00-3 | Chloroethane | 29000 | U |
| 75-09-2 | Methylene Chloride | 29000 | U |
| 67-64-1 | Acetone | 29000 | U |
| 75-15-0 | Carbon Disulfide | 29000 | U |
| 75-35-4 | 1,1-Dichloroethene | 29000 | U |
| 75-34-3 | 1,1-Dichloroethane | 29000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 12000 | J |
| 67-66-3 | Chloroform | 29000 | U |
| 107-06-2 | 1,2-Dichloroethane | 29000 | U |
| 78-93-3 | 2-Butanone | 29000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 36000 | |
| 56-23-5 | Carbon Tetrachloride | 29000 | U |
| 75-27-4 | Bromodichloromethane | 29000 | U |
| 78-87-5 | 1,2-Dichloropropane | 29000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 29000 | U |
| 79-01-6 | Trichloroethene | 29000 | U |
| 124-48-1 | Dibromochloromethane | 29000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 29000 | U |
| 71-43-2 | Benzene | 29000 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 29000 | U |
| 75-25-2 | Bromoform | 29000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 29000 | U |
| 591-78-6 | 2-Hexanone | 29000 | U |
| 127-18-4 | Tetrachloroethene | 29000 | U |
| 108-88-3 | Toluene | 68000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 29000 | U |
| 108-90-7 | Chlorobenzene | 29000 | U |
| 100-41-4 | Ethylbenzene | 31000 | |
| 100-42-5 | Styrene | 29000 | U |
| 1330-20-7 | Xylene (total) | 200000 | |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB143SS3-6'-8'

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230102

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219513.D

Level: (low/med) MED

Date Received: 02/13/96

% Moisture: not dec. 23

Date Analyzed: 02/19/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 1600 | U |
| 74-83-9 | Bromomethane | 1600 | U |
| 75-01-4 | Vinyl Chloride | 1600 | U |
| 75-00-3 | Chloroethane | 1600 | U |
| 75-09-2 | Methylene Chloride | 1600 | U |
| 67-64-1 | Acetone | 1600 | U |
| 75-15-0 | Carbon Disulfide | 1600 | U |
| 75-35-4 | 1,1-Dichloroethene | 1600 | U |
| 75-34-3 | 1,1-Dichloroethane | 1600 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 1600 | U |
| 67-66-3 | Chloroform | 1600 | U |
| 107-06-2 | 1,2-Dichloroethane | 1600 | U |
| 78-93-3 | 2-Butanone | 1600 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 1600 | U |
| 56-23-5 | Carbon Tetrachloride | 1600 | U |
| 75-27-4 | Bromodichloromethane | 1600 | U |
| 78-87-5 | 1,2-Dichloropropane | 1600 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 1600 | U |
| 79-01-6 | Trichloroethene | 1600 | U |
| 124-48-1 | Dibromochloromethane | 1600 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 1600 | U |
| 71-43-2 | Benzene | 1600 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 1600 | U |
| 75-25-2 | Bromoform | 1600 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1600 | U |
| 591-78-6 | 2-Hexanone | 1600 | U |
| 127-18-4 | Tetrachloroethene | 760 | J |
| 108-88-3 | Toluene | 1600 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1600 | U |
| 108-90-7 | Chlorobenzene | 1600 | U |
| 100-41-4 | Ethylbenzene | 1600 | U |
| 100-42-5 | Styrene | 1600 | U |
| 1330-20-7 | Xylene (total) | 1600 | U |

CLIENT SAMPLE NO.

ACS-SB143SS3-6'-8'

Method: SOW 1/91

SDG No.: 02301

Lab Sample ID: 960230102

Lab File ID: 0219513.D

Date Received: 02/13/96

Date Analyzed: 02/19/96

Dilution Factor: 1.0

Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB143SS3-6'-8' D

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230103

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219514.D

Level: (low/med) MED

Date Received: 02/13/96

% Moisture: not dec. 20

Date Analyzed: 02/19/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 1500 | U |
| 74-83-9 | Bromomethane | 1500 | U |
| 75-01-4 | Vinyl Chloride | 1500 | U |
| 75-00-3 | Chloroethane | 1500 | U |
| 75-09-2 | Methylene Chloride | 1500 | U |
| 57-64-1 | Acetone | 1500 | U |
| 75-15-0 | Carbon Disulfide | 1500 | U |
| 75-35-4 | 1,1-Dichloroethene | 1500 | U |
| 75-34-3 | 1,1-Dichloroethane | 1500 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 1500 | U |
| 67-66-3 | Chloroform | 1500 | U |
| 107-06-2 | 1,2-Dichloroethane | 1500 | U |
| 78-93-3 | 2-Butanone | 1500 | U |
| 1-55-6 | 1,1,1-Trichloroethane | 1500 | U |
| 56-23-5 | Carbon Tetrachloride | 1500 | U |
| 75-27-4 | Bromodichloromethane | 1500 | U |
| 78-87-5 | 1,2-Dichloropropane | 1500 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 1500 | U |
| 79-01-6 | Trichloroethene | 1500 | U |
| 124-48-1 | Dibromochloromethane | 1500 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 1500 | U |
| 71-43-2 | Benzene | 1500 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 1500 | U |
| 75-25-2 | Bromoform | 1500 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1500 | U |
| 591-78-6 | 2-Hexanone | 1500 | U |
| 127-18-4 | Tetrachloroethene | 690 | J |
| 108-88-3 | Toluene | 1500 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1500 | U |
| 108-90-7 | Chlorobenzene | 1500 | U |
| 100-41-4 | Ethylbenzene | 1500 | U |
| 100-42-5 | Styrene | 1500 | U |
| 1330-20-7 | Xylene (total) | 1500 | U |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5F

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: VBLK5F

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219503.D

Level: (low/med) MED

Date Received:

% Moisture: not dec. 0

Date Analyzed: 02/19/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 1200 | U |
| 74-83-9 | Bromomethane | 1200 | U |
| 75-01-4 | Vinyl Chloride | 1200 | U |
| 75-00-3 | Chloroethane | 1200 | U |
| 75-09-2 | Methylene Chloride | 1200 | U |
| 67-64-1 | Acetone | 1200 | U |
| 75-15-0 | Carbon Disulfide | 1200 | U |
| 75-35-4 | 1,1-Dichloroethene | 1200 | U |
| 75-34-3 | 1,1-Dichloroethane | 1200 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 1200 | U |
| 67-66-3 | Chloroform | 1200 | U |
| 107-06-2 | 1,2-Dichloroethane | 1200 | U |
| 78-93-3 | 2-Butanone | 1200 | U |
| 1-55-6 | 1,1,1-Trichloroethane | 1200 | U |
| 56-23-5 | Carbon Tetrachloride | 1200 | U |
| 75-27-4 | Bromodichloromethane | 1200 | U |
| 78-87-5 | 1,2-Dichloropropane | 1200 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 1200 | U |
| 79-01-6 | Trichloroethene | 1200 | U |
| 124-48-1 | Dibromochloromethane | 1200 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 1200 | U |
| 71-43-2 | Benzene | 1200 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 1200 | U |
| 75-25-2 | Bromoform | 1200 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1200 | U |
| 591-78-6 | 2-Hexanone | 1200 | U |
| 127-18-4 | Tetrachloroethene | 1200 | U |
| 108-88-3 | Toluene | 1200 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1200 | U |
| 108-90-7 | Chlorobenzene | 1200 | U |
| 100-41-4 | Ethylbenzene | 1200 | U |
| 100-42-5 | Styrene | 1200 | U |
| 1330-20-7 | Xylene (total) | 1200 | U |

CLIENT SAMPLE NO.

VBLK5F

Method: SOW 1/91

SDG No.: 02301

Lab Sample ID: VBLK5F

Lab File ID: 0219503.D

Date Received:

Date Analyzed: 02/19/96

Dilution Factor: 1.0

Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK5H

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: VBLK5H

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219E02.D

Level: (low/med) MED

Date Received:

% Moisture: not dec. 0

Date Analyzed: 02/19/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 1.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|------|---|
| 74-87-3 | Chloromethane | 1200 | U |
| 74-83-9 | Bromomethane | 1200 | U |
| 75-01-4 | Vinyl Chloride | 1200 | U |
| 75-00-3 | Chloroethane | 1200 | U |
| 75-09-2 | Methylene Chloride | 1200 | U |
| 57-64-1 | Acetone | 1200 | U |
| 75-15-0 | Carbon Disulfide | 1200 | U |
| 75-35-4 | 1,1-Dichloroethene | 1200 | U |
| 75-34-3 | 1,1-Dichloroethane | 1200 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 1200 | U |
| 67-66-3 | Chloroform | 1200 | U |
| 107-06-2 | 1,2-Dichloroethane | 1200 | U |
| 78-93-3 | 2-Butanone | 1200 | U |
| 1-55-6 | 1,1,1-Trichloroethane | 1200 | U |
| 56-23-5 | Carbon Tetrachloride | 1200 | U |
| 75-27-4 | Bromodichloromethane | 1200 | U |
| 78-87-5 | 1,2-Dichloropropane | 1200 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 1200 | U |
| 79-01-6 | Trichloroethene | 1200 | U |
| 124-48-1 | Dibromochloromethane | 1200 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 1200 | U |
| 71-43-2 | Benzene | 1200 | U |
| 10061-02-6 | Trans-1,3-Dichloropropene | 1200 | U |
| 75-25-2 | Bromoform | 1200 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 1200 | U |
| 591-78-6 | 2-Hexanone | 1200 | U |
| 127-18-4 | Tetrachloroethene | 1200 | U |
| 108-88-3 | Toluene | 1200 | U |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 1200 | U |
| 108-90-7 | Chlorobenzene | 1200 | U |
| 100-41-4 | Ethylbenzene | 1200 | U |
| 100-42-5 | Styrene | 1200 | U |
| 1330-20-7 | Xylene (total) | 1200 | U |

CLIENT SAMPLE NO.

VBLK5H

SDG No.: 02301

Lab Sample ID: VBLK5H

Lab File ID: 0219E02.D

Date Received:

Date Analyzed: 02/19/96

Dilution Factor: 1.0

Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

[illegible]

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB142SS3-6'-8'MS

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230101MS

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219E04.D

Level: (low/med) MED

Date Received: 02/13/96

% Moisture: not dec. 17

Date Analyzed: 02/19/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 20.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|--------|---|
| 74-87-3 | Chloromethane | 29000 | U |
| 74-83-9 | Bromomethane | 29000 | U |
| 75-01-4 | Vinyl Chloride | 29000 | U |
| 75-00-3 | Chloroethane | 29000 | U |
| 75-09-2 | Methylene Chloride | 29000 | U |
| 67-64-1 | Acetone | 29000 | U |
| 75-15-0 | Carbon Disulfide | 29000 | U |
| 75-35-4 | 1,1-Dichloroethene | 14000 | J |
| 75-34-3 | 1,1-Dichloroethane | 29000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 12000 | J |
| 67-66-3 | Chloroform | 29000 | U |
| 107-06-2 | 1,2-Dichloroethane | 29000 | U |
| 78-93-3 | 2-Butanone | 29000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 34000 | |
| 56-23-5 | Carbon Tetrachloride | 29000 | U |
| 75-27-4 | Bromodichloromethane | 29000 | U |
| 78-87-5 | 1,2-Dichloropropane | 29000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 29000 | U |
| 79-01-6 | Trichloroethene | 12000 | J |
| 124-48-1 | Dibromochloromethane | 29000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 29000 | U |
| 71-43-2 | Benzene | 16000 | J |
| 10061-02-6 | Trans-1,3-Dichloropropene | 29000 | U |
| 75-25-2 | Bromoform | 29000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 29000 | U |
| 591-78-6 | 2-Hexanone | 29000 | U |
| 127-18-4 | Tetrachloroethene | 29000 | U |
| 108-88-3 | Toluene | 75000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 29000 | U |
| 108-90-7 | Chlorobenzene | 13000 | J |
| 100-41-4 | Ethylbenzene | 28000 | J |
| 100-42-5 | Styrene | 29000 | U |
| 1330-20-7 | Xylene (total) | 180000 | |

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ACS-SB142SS3-6'-8'MSD

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230101MSD

Sample wt/vol: 4 (g/mL) g

Lab File ID: 0219E05.D

Level: (low/med) MED

Date Received: 02/13/96

% Moisture: not dec. 17

Date Analyzed: 02/20/96

GC Column: DB-624 ID: .53(mm)

Dilution Factor: 20.0

Soil Extract Volume: 10000(uL)

Soil Aliquot Volume: 100(uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

| | | | |
|------------|----------------------------|--------|---|
| 74-87-3 | Chloromethane | 29000 | U |
| 74-83-9 | Bromomethane | 29000 | U |
| 75-01-4 | Vinyl Chloride | 29000 | U |
| 75-00-3 | Chloroethane | 29000 | U |
| 75-09-2 | Methylene Chloride | 29000 | U |
| 57-64-1 | Acetone | 29000 | U |
| 75-15-0 | Carbon Disulfide | 29000 | U |
| 75-35-4 | 1,1-Dichloroethene | 12000 | J |
| 75-34-3 | 1,1-Dichloroethane | 29000 | U |
| 540-59-0 | 1,2-Dichloroethene (total) | 12000 | J |
| 67-66-3 | Chloroform | 29000 | U |
| 107-06-2 | 1,2-Dichloroethane | 29000 | U |
| 78-93-3 | 2-Butanone | 29000 | U |
| 71-55-6 | 1,1,1-Trichloroethane | 34000 | |
| 56-23-5 | Carbon Tetrachloride | 29000 | U |
| 75-27-4 | Bromodichloromethane | 29000 | U |
| 78-87-5 | 1,2-Dichloropropane | 29000 | U |
| 10061-01-5 | cis-1,3-Dichloropropene | 29000 | U |
| 79-01-6 | Trichloroethene | 13000 | J |
| 124-48-1 | Dibromochloromethane | 29000 | U |
| 79-00-5 | 1,1,2-Trichloroethane | 29000 | U |
| 71-43-2 | Benzene | 16000 | J |
| 10061-02-6 | Trans-1,3-Dichloropropene | 29000 | U |
| 75-25-2 | Bromoform | 29000 | U |
| 108-10-1 | 4-Methyl-2-Pentanone | 29000 | U |
| 591-78-6 | 2-Hexanone | 29000 | U |
| 127-18-4 | Tetrachloroethene | 5400 | J |
| 108-88-3 | Toluene | 76000 | |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | 29000 | U |
| 108-90-7 | Chlorobenzene | 12000 | J |
| 100-41-4 | Ethylbenzene | 29000 | J |
| 100-42-5 | Styrene | 29000 | U |
| 1330-20-7 | Xylene (total) | 190000 | |

2B
SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Level: (low/med) MED

| | CLIENT SAMPLE NO. | SMC1 (TOL) # | SMC2 (BFB) # | SMC3 (DCE) # | OTHER | TOT OUT |
|----|------------------------|-----------------|-----------------|-----------------|-------|------------|
| 01 | VBLK5F | 101 | 98 | 105 | | 0 |
| 02 | ACS-SB143SS3-6'-8' | 101 | 97 | 104 | | 0 |
| 03 | ACS-SB143SS3-6'-8' D | 100 | 100 | 103 | | 0 |
| 04 | VBLK5H | 98 | 101 | 106 | | 0 |
| 05 | ACS-SB142SS3-6'-8' | 98D | 100D | 102D | | 0 |
| 06 | ACS-SB142SS3-6'-8' MS | 98D | 101D | 104D | | 0 |
| 07 | ACS-SB142SS3-6'-8' MSD | 98D | 100D | 107D | | 0 |
| 08 | | | | | | |
| 09 | | | | | | |
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QC LIMITS

SMC1 (TOL) = Toluene-d8 (84-138)
 SMC2 (BFB) = Bromofluorobenzene (59-113)
 SMC3 (DCE) = 1,2-Dichloroethane-d4 (70-121)

Column to be used to flag recovery values

* Values outside of QC limits.

D System Monitoring Compound diluted out

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix Spike - Client Sample No.: ACS-SB142SS3-6'-8' Level:(low/med) MED

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC. LIMITS REC. |
|--------------------|---------------------------|------------------------------------|--------------------------------|------------------|-----------------------|
| 1,1-Dichloroethene | 7500 | 0 | 14000 | 187 D | 59-172 |
| Trichloroethene | 7500 | 0 | 12000 | 160 D | 62-137 |
| Benzene | 7500 | 0 | 16000 | 213 D | 66-142 |
| Toluene | 7500 | 68000 | 75000 | 93 D | 59-139 |
| Chlorobenzene | 7500 | 0 | 13000 | 173 D | 60-133 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD # | QC LIMITS | |
|--------------------|---------------------------|---------------------------------|-------------------|------------|-----------|--------|
| | | | | | RPD | REC. |
| 1,1-Dichloroethene | 7500 | 12000 | 160 D | 16 | 22 | 59-172 |
| Trichloroethene | 7500 | 13000 | 173 D | 8 | 24 | 62-137 |
| Benzene | 7500 | 16000 | 213 D | 0 | 21 | 66-142 |
| Toluene | 7500 | 76000 | 107 D | 14 | 21 | 59-139 |
| Chlorobenzene | 7500 | 12000 | 160 D | 8 | 21 | 60-133 |

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits.

D Spike compound diluted out.

RPD: 0 out of 5 outside limits

Spike Recovery: 7 out of 10 outside limits

COMMENTS: _____

4A
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBK5H

b Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Lab File ID: 0219E02.D

Lab Sample ID: VBK5H

Date Analyzed: 02/19/96

Time Analyzed: 21:34

GC Column: DB-624 ID: .53(mm)

Heated Purge: (Y/N) N

Instrument ID: MSD5

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

| | CLIENT SAMPLE NO. | LAB SAMPLE ID | LAB FILE ID | TIME ANALYZED |
|----|-----------------------|------------------|----------------|------------------|
| 01 | ACS-SB142SS3-6'-8' | 960230101 | 0219E03.D | 22:26 |
| 02 | ACS-SB142SS3-6'-8'MS | 960230101MS | 0219E04.D | 23:25 |
| 03 | ACS-SB142SS3-6'-8'MSD | 960230101MSD | 0219E05.D | 00:05 |
| 04 | | | | |
| 05 | | | | |
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COMMENTS:

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Lab File ID (Standard): 0219501.D

Date Analyzed: 02/19/96

Instrument ID: MSD5

Time Analyzed: 07:54

GC Column: DB-624

ID: .53(mm)

Heated Purge: (Y/N) N

| | IS1(BCM) AREA # | RT # | IS2(DFB) AREA # | RT # | IS3(CBZ) AREA # | RT # |
|-------------------------|--------------------|-------|--------------------|-------|--------------------|-------|
| 12 HOUR STD | 637601 | 10.26 | 2325780 | 12.44 | 1957828 | 18.72 |
| UPPER LIMIT | 1275202 | 10.76 | 4651560 | 12.94 | 3915656 | 19.22 |
| LOWER LIMIT | 318800 | 9.76 | 1162890 | 11.94 | 978914 | 18.22 |
| EPA SAMPLE NO. | | | | | | |
| 01 VBLK5F | 686565 | 10.26 | 2645179 | 12.45 | 2139193 | 18.76 |
| 02 ACS-SB143SS3-6'-8' | 712404 | 10.29 | 2746431 | 12.48 | 2250829 | 18.76 |
| 03 ACS-SB143SS3-6'-8' D | 699235 | 10.27 | 2684784 | 12.45 | 2214927 | 18.73 |
| 04 | | | | | | |
| 05 | | | | | | |
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| 21 | | | | | | |
| 22 | | | | | | |

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: IEA-NC

Method: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Lab File ID (Standard): 0219E01.D

Date Analyzed: 02/19/96

Instrument ID: MSD5

Time Analyzed: 20:41

GC Column: DB-624

ID: .53(mm)

Heated Purge: (Y/N) N

| | IS1 (BCM) AREA # | RT # | IS2 (DFB) AREA # | RT # | IS3 (CBZ) AREA # | RT # |
|--------------------------|---------------------|-------|---------------------|-------|---------------------|-------|
| 12 HOUR STD | 779162 | 10.33 | 2801133 | 12.49 | 2324722 | 18.76 |
| UPPER LIMIT | 1558324 | 10.83 | 5602266 | 12.99 | 4649444 | 19.26 |
| LOWER LIMIT | 389581 | 9.83 | 1400566 | 11.99 | 1162361 | 18.26 |
| EPA SAMPLE NO. | | | | | | |
| 01 VBLK5H | 784543 | 10.31 | 2978764 | 12.49 | 2443947 | 18.77 |
| 02 ACS-SB142SS3-6'-8' | 795935 | 10.31 | 2934452 | 12.49 | 2468671 | 18.78 |
| 03 ACS-SB142SS3-6'-8'MS | 763438 | 10.32 | 2829419 | 12.49 | 2408820 | 18.78 |
| 04 ACS-SB142SS3-6'-8'MSD | 751689 | 10.29 | 2841435 | 12.47 | 2407546 | 18.77 |
| 05 | | | | | | |
| 06 | | | | | | |
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| 21 | | | | | | |
| 22 | | | | | | |

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.



MONTGOMERY WATSON

CHAIN OF CUSTODY RECORD

SPECIAL
INSTRUCTIONS:

- ☐ PECFA
☐ WILUST
☐ ACT 307
☐ REPORT DRY WT
☐ OTHER:

JRNAROUND

- ☐ 2 WEEKS (standard)
☐ 1 WEEK
☐ 3 DAYS
☐ 1 DAY

| PROJECT NAME: HARRISON - Chemical Service | | | PROJECT #: 4677-0075 | | | |
|----------------------------------------------|-----------------|-------------|----------------------------|-------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CITY: Columbia | | | STATE: Tennessee | | | |
| SAMPLER(S): Lead 4-Pk | | | | | | |
| COLLECTION DATE | COLLECTION TIME | GRAB / COMP | SAMPLE ID | NO. OF CONTAINERS | REMARKS | LAB USE ONLY |
| 7/6/00 | 1110 | X | ACS-SB142-SS3-6-8' | 1 | X | <div style="display: flex; justify-content: space-between;"> <div> <p>29853 + AS</p> <p>29853 + Dup</p> <p>29854</p> <p>29855</p> </div> <div> <p>29853 + AS</p> <p>29853 + Dup</p> <p>29854</p> <p>29855</p> </div> </div> |
| 7/6/00 | 1335 | X | ACS-SB143-SS3-6-8' | 1 | X | |
| 7/6/00 | 1335 | X | ACS-SB143-SS3-6-8' | 1 | X | |
| 7/6/00 | 1345 | X | ACS-SB143-SS4-8 1/2-10 1/2 | 1 | X | |
| SPECIAL INSTRUCTIONS: | | | | | | PROJ. MGR.: |

COC Seal #s 92-00075, 4076

RECEIVED: ☐ INTACT ☐ ON ICE TEMP _____ OF

PROJ. MGR.:

M. T. V. M. T.

X Run Duplicate on # 9-29853 and information tag # 9-29852
 AS well as Lab Analysis

| SIGNATURE | PRINT NAME | COMPANY / TITLE | DATE | TIME |
|------------------------------|--------------------|------------------------------------|--------|-------|
| RELINQUISHED BY: [Signature] | DAVID A. PIERZICKI | Montgomery Watson / Harrison, Tenn | 7/6/00 | 12:00 |
| RECEIVED BY: | | | | |
| RELINQUISHED BY: | | | | |
| RECEIVED BY: | | | | |

C-O-C No. 010573

NAME OF COURIER: _____

AIRBILL NUMBER: _____

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

PBLK06

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: PBLK06

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P4030296_147.D

% Moisture: 0 decanted: (Y/N) N

Date Received: / /

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: _____

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|----|---|
| 12674-11-2-----Aroclor-1016 | 33 | U |
| 11104-28-2-----Aroclor-1221 | 67 | U |
| 11141-16-5-----Aroclor-1232 | 33 | U |
| 53469-21-9-----Aroclor-1242 | 33 | U |
| 12672-29-6-----Aroclor-1248 | 33 | U |
| 11097-69-1-----Aroclor-1254 | 33 | U |
| 11096-82-5-----Aroclor-1260 | 33 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS3P

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230104

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P4030296_150.D

% Moisture: 18 decanted: (Y/N) N

Date Received: 02/13/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.5

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|----|
| 12674-11-2-----Aroclor-1016 | 400 | U |
| 11104-28-2-----Aroclor-1221 | 810 | U |
| 11141-16-5-----Aroclor-1232 | 400 | U |
| 53469-21-9-----Aroclor-1242 | 900 | CP |
| 12672-29-6-----Aroclor-1248 | 400 | U |
| 11097-69-1-----Aroclor-1254 | 2100 | CP |
| 11096-82-5-----Aroclor-1260 | 400 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS3PDL

I Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230104DL

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P4030296_148.D

% Moisture: 18 decanted: (Y/N) N

Date Received: 02/13/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 100.0

GPC Cleanup: (Y/N) Y pH: 6.5

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|----|
| 12674-11-2-----Aroclor-1016 | 4000 | U |
| 11104-28-2-----Aroclor-1221 | 8100 | U |
| 11141-16-5-----Aroclor-1232 | 4000 | U |
| 53469-21-9-----Aroclor-1242 | 700 | JP |
| 12672-29-6-----Aroclor-1248 | 4000 | U |
| 11097-69-1-----Aroclor-1254 | 2200 | JP |
| 11096-82-5-----Aroclor-1260 | 4000 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS4

b Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230105

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P4030296_153.D

% Moisture: 13 decanted: (Y/N) N

Date Received: 02/13/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.7

Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

| | | |
|-----------------------------|------|----|
| 12674-11-2-----Aroclor-1016 | 38 | U |
| 11104-28-2-----Aroclor-1221 | 77 | U |
| 11141-16-5-----Aroclor-1232 | 38 | U |
| 53469-21-9-----Aroclor-1242 | 1400 | CP |
| 12672-29-6-----Aroclor-1248 | 38 | U |
| 11097-69-1-----Aroclor-1254 | 450 | CP |
| 11096-82-5-----Aroclor-1260 | 38 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS4DL

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230105DL

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: P4030296_149.D

% Moisture: 13 decanted: (Y/N) N

Date Received: 02/13/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.7

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|----|
| 12674-11-2-----Aroclor-1016 | 380 | U |
| 11104-28-2-----Aroclor-1221 | 770 | U |
| 11141-16-5-----Aroclor-1232 | 380 | U |
| 53469-21-9-----Aroclor-1242 | 1400 | DP |
| 12672-29-6-----Aroclor-1248 | 380 | U |
| 11097-69-1-----Aroclor-1254 | 590 | DP |
| 11096-82-5-----Aroclor-1260 | 380 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS3PMS

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230104MS

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P4030296_151.D

% Moisture: 18 decanted: (Y/N) N

Date Received: 02/13/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.5

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 400 | U |
| 11104-28-2-----Aroclor-1221 | 810 | U |
| 11141-16-5-----Aroclor-1232 | 400 | U |
| 53469-21-9-----Aroclor-1242 | 1300 | P |
| 12672-29-6-----Aroclor-1248 | 400 | U |
| 11097-69-1-----Aroclor-1254 | 3200 | P |
| 11096-82-5-----Aroclor-1260 | 1500 | P |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

3SS3PMSD

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-134

SDG No.: 02301

Matrix: (soil/water) SOIL

Lab Sample ID: 960230104MSD

Sample wt/vol: 30.1 (g/mL) G

Lab File ID: P4030296_152.D

% Moisture: 18 decanted: (Y/N) N

Date Received: 02/13/96

Extraction: (SepF/Cont/Sonc) SONC

Date Extracted: 02/21/96

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 03/08/96

Injection Volume: 1.0(uL)

Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.5

Sulfur Cleanup: (Y/N) N

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG | Q |
|---------|----------|-----------------------------------------------|---|
|---------|----------|-----------------------------------------------|---|

| | | |
|-----------------------------|------|---|
| 12674-11-2-----Aroclor-1016 | 400 | U |
| 11104-28-2-----Aroclor-1221 | 810 | U |
| 11141-16-5-----Aroclor-1232 | 400 | U |
| 53469-21-9-----Aroclor-1242 | 2000 | P |
| 12672-29-6-----Aroclor-1248 | 400 | U |
| 11097-69-1-----Aroclor-1254 | 4900 | P |
| 11096-82-5-----Aroclor-1260 | 3200 | P |

2F
SOIL PESTICIDE SURROGATE RECOVERY

Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

GC Column(1): DB-1701

ID: 0.53 (mm)

GC Column(2): RTX-35

ID: 0.53 (mm)

| | CLIENT SAMPLE NO. | TCX 1 %REC # | TCX 2 %REC # | DCB 1 %REC # | DCB 2 %REC # | OTHER (1) | OTHER (2) | TOT OUT |
|----|----------------------|-----------------|-----------------|-----------------|-----------------|--------------|--------------|------------|
| 01 | 3SS3P | 29D | 130D | 80D | 130D | | | 0 |
| 02 | 3SS3PDL | 0D | 0D | 0D | 0D | | | 0 |
| 03 | 3SS3PMS | 42D | 354D | 332D | 362D | | | 0 |
| 04 | 3SS3PMSD | 53D | 164D | 570D | 186D | | | 0 |
| 05 | 3SS4 | 57* | 1200* | 570* | 1400* | | | 4 |
| 06 | 3SS4DL | 51D | 120D | 159D | 121D | | | 0 |
| 07 | PBLK06 | 46* | 96 | 72 | 100 | | | 1 |
| 08 | | | | | | | | |
| 09 | | | | | | | | |
| 10 | | | | | | | | |
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| 23 | | | | | | | | |
| 24 | | | | | | | | |
| 25 | | | | | | | | |
| 26 | | | | | | | | |
| 27 | | | | | | | | |
| 28 | | | | | | | | |
| 29 | | | | | | | | |
| 30 | | | | | | | | |

ADVISORY
QC LIMITS

TCX = Tetrachloro-m-xylene

(60-150)

DCB = Decachlorobiphenyl

(60-150)

Column to be used to flag recovery values

* Values outside of QC limits

D Sample diluted

3F
SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-134

SDG No.: 02301

Matrix Spike - Client Sample No.: 3SS3P

| COMPOUND | SPIKE ADDED (ug/Kg) | SAMPLE CONCENTRATION (ug/Kg) | MS CONCENTRATION (ug/Kg) | MS % REC # | QC. LIMITS REC. |
|--------------|---------------------------|------------------------------------|--------------------------------|------------------|-----------------------|
| Aroclor-1260 | 400 | 0.0 | 150 | 38* | 60-140 |

| COMPOUND | SPIKE ADDED (ug/Kg) | MSD CONCENTRATION (ug/Kg) | MSD % REC # | % RPD # | QC LIMITS RPD REC. |
|--------------|---------------------------|---------------------------------|-------------------|------------|-----------------------|
| Aroclor-1260 | 400 | 320 | 80 | 71* | 40 60-140 |

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 1 outside limits

Spike Recovery: 1 out of 2 outside limits

COMMENTS:

4C
PESTICIDE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

PBLK06

Name: INDUSTRIAL & ENVIRONMENTAL Contract: SOW 1/91

Lab Code: IEA

Case No.: 1589-134

SDG No.: 02301

Lab Sample ID: PBLK06

Lab File ID: P4030296_147.D

Matrix: (soil/water) SOIL

Extraction: (SepF, Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) N

Date Extracted: 02/21/96

Date Analyzed (1): 03/08/96

Date Analyzed (2): 03/12/96

Time Analyzed (1): 1544

Time Analyzed (2): 2116

Instrument ID (1): HP5890P4

Instrument ID (2): HP5890P1

GC Column (1): DB-1701

ID: 0.53(mm)

GC Column (2): RTX-35

ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

| | CLIENT SAMPLE NO. | LAB SAMPLE ID | DATE ANALYZED 1 | DATE ANALYZED 2 |
|----|----------------------|------------------|--------------------|--------------------|
| 01 | 3SS3P | 960230104 | 03/08/96 | 03/10/96 |
| 02 | 3SS3PDL | 960230104DL | 03/08/96 | 03/10/96 |
| 03 | 3SS3PMS | 960230104MS | 03/08/96 | 03/10/96 |
| 04 | 3SS3PMSD | 960230104MSD | 03/08/96 | 03/10/96 |
| 05 | 3SS4 | 960230105 | 03/08/96 | 03/10/96 |
| 06 | 3SS4DL | 960230105DL | 03/08/96 | 03/10/96 |
| 07 | | | | |
| 08 | | | | |
| 09 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
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| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |

COMMENTS:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

149554-8.5/10.

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: Z0219Matrix: (soil/water): SOILLab Sample ID: 0219001 ⁰⁰¹¹Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP326% Moisture: 18 decanted: (Y/N) NDate Received: 02/16/96Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 6.7Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 40 | U |
| 11104-28-2 | Aroclor-1221 | 82 | U |
| 11141-16-5 | Aroclor-1232 | 40 | U |
| 53469-21-9 | Aroclor-1242 | 40 | U |
| 12672-29-6 | Aroclor-1248 | 40 | U |
| 11097-69-1 | Aroclor-1254 | 40 | U |
| 11096-82-5 | Aroclor-1260 | 40 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

149557-16/16

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: 20219Matrix: (soil/water): SOILLab Sample ID: 0219002017Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP327% Moisture: 20 decanted: (Y/N) NDate Received: 02/16/96Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 8.3Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 41 | U |
| 11104-28-2 | Aroclor-1221 | 84 | U |
| 11141-16-5 | Aroclor-1232 | 41 | U |
| 53469-21-9 | Aroclor-1242 | 41 | U |
| 12672-29-6 | Aroclor-1248 | 41 | U |
| 11097-69-1 | Aroclor-1254 | 41 | U |
| 11096-82-5 | Aroclor-1260 | 41 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

150553-6/8

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: 20219

0025

Matrix: (soil/water): SOILLab Sample ID: 0219003Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP328% Moisture: 19 decanted: (Y/N) NDate Received: 02/16/96Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 6.9Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|-----|---|
| 12674-11-2 | Aroclor-1016 | 41 | U |
| 11104-28-2 | Aroclor-1221 | 83 | U |
| 11141-16-5 | Aroclor-1232 | 41 | U |
| 53469-21-9 | Aroclor-1242 | 41 | U |
| 12672-29-6 | Aroclor-1248 | 500 | |
| 11097-69-1 | Aroclor-1254 | 150 | |
| 11096-82-5 | Aroclor-1260 | 49. | |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

151553-5/7

Lab Name: IEA-CT Contract: _____

Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: 20219

Matrix: (soil/water): SOIL Lab Sample ID: 0219004 ⁷⁰³⁶

Sample wt/vol: 30 (g/ml) G Lab File ID: B5213CLP329

% Moisture: 18 decanted: (Y/N) N Date Received: 02/16/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/16/96

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/17/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.6 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 40 | U |
| 11104-28-2 | Aroclor-1221 | 82 | U |
| 11141-16-5 | Aroclor-1232 | 40 | U |
| 53469-21-9 | Aroclor-1242 | 40 | U |
| 12672-29-6 | Aroclor-1248 | 40 | U |
| 11097-69-1 | Aroclor-1254 | 40 | U |
| 11096-82-5 | Aroclor-1260 | 40 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

151995-9/11

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: 20219Matrix: (soil/water): SOILLab Sample ID: 0219005Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP330% Moisture: 15 decanted: (Y/N) NDate Received: 02/16/96Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 39 | U |
| 11104-28-2 | Aroclor-1221 | 79 | U |
| 11141-16-5 | Aroclor-1232 | 39 | U |
| 53469-21-9 | Aroclor-1242 | 39 | U |
| 12672-29-6 | Aroclor-1248 | 39 | U |
| 11097-69-1 | Aroclor-1254 | 39 | U |
| 11096-82-5 | Aroclor-1260 | 39 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

152554-7/9

Lab Name: IEA-CT Contract: _____
Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: Z0219 0052
Matrix: (soil/water): SOIL Lab Sample ID: 0219006
Sample wt/vol: 30 (g/ml) G Lab File ID: B5213CLP331
% Moisture: 19 decanted: (Y/N) N Date Received: 02/16/96
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/16/96
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/17/96
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) Y pH: 6.9 Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 41 | U |
| 11104-28-2 | Aroclor-1221 | 83 | U |
| 11141-16-5 | Aroclor-1232 | 41 | U |
| 53469-21-9 | Aroclor-1242 | 41 | U |
| 12672-29-6 | Aroclor-1248 | 41 | U |
| 11097-69-1 | Aroclor-1254 | 41 | U |
| 11096-82-5 | Aroclor-1260 | 41 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

152SS5-9/11

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: Z0219Matrix: (soil/water): SOILLab Sample ID: 0219007 **0059**Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP332% Moisture: 19 decanted: (Y/N) NDate Received: 02/16/96Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 7.2Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 41 | U |
| 11104-28-2 | Aroclor-1221 | 83 | U |
| 11141-16-5 | Aroclor-1232 | 41 | U |
| 53469-21-9 | Aroclor-1242 | 41 | U |
| 12672-29-6 | Aroclor-1248 | 41 | U |
| 11097-69-1 | Aroclor-1254 | 41 | U |
| 11096-82-5 | Aroclor-1260 | 41 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK86

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: 20219 **0213.**Matrix: (soil/water): SOILLab Sample ID: 021696-B02Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP325% Moisture: 0 decanted: (Y/N) N

Date Received: _____

Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: _____Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|----|---|
| 12674-11-2 | Aroclor-1016 | 33 | U |
| 11104-28-2 | Aroclor-1221 | 67 | U |
| 11141-16-5 | Aroclor-1232 | 33 | U |
| 53469-21-9 | Aroclor-1242 | 33 | U |
| 12672-29-6 | Aroclor-1248 | 33 | U |
| 11097-69-1 | Aroclor-1254 | 33 | U |
| 11096-82-5 | Aroclor-1260 | 33 | U |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEETEPA SAMPLE NO.
149554-8.5/10.

Lab Name: IEA-CT Contract: _____
Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: Z0219
Matrix: (soil/water): SOIL Lab Sample ID: 0219001MS
Sample wt/vol: 30 (g/ml) G Lab File ID: B5213CLP333 **238**
% Moisture: 18 decanted: (Y/N) N Date Received: 02/16/96
Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/16/96
Concentrated Extract Volume: 5000 (uL) Date Analyzed: 02/17/96
Injection Volume: 1.0 (uL) Dilution Factor: 1.0
GPC Cleanup: (Y/N) Y pH: 6.7 Sulfur Cleanup: (Y/N) N

CAS NO. COMPOUND CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|-----|---|
| 12674-11-2 | Aroclor-1016 | 40 | U |
| 11104-28-2 | Aroclor-1221 | 82 | U |
| 11141-16-5 | Aroclor-1232 | 40 | U |
| 53469-21-9 | Aroclor-1242 | 480 | |
| 12672-29-6 | Aroclor-1248 | 40 | U |
| 11097-69-1 | Aroclor-1254 | 40 | U |
| 11096-82-5 | Aroclor-1260 | 380 | P |

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

149554-8.5/10

Lab Name: IEA-CT Contract: _____Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: Z0219Matrix: (soil/water): SOILLab Sample ID: 0219001MSD **A249**Sample wt/vol: 30 (g/ml) GLab File ID: B5213CLP334% Moisture: 18 decanted: (Y/N) NDate Received: 02/16/96Extraction: (SepF/Cont/Sonc) SONCDate Extracted: 02/16/96Concentrated Extract Volume: 5000 (uL)Date Analyzed: 02/17/96Injection Volume: 1.0 (uL)Dilution Factor: 1.0GPC Cleanup: (Y/N) Y pH: 6.7Sulfur Cleanup: (Y/N) N

CAS NO.

COMPOUND

CONCENTRATION UNITS: Q
(ug/L or ug/Kg) UG/KG

| | | | |
|------------|--------------|-----|---|
| 12674-11-2 | Aroclor-1016 | 40 | U |
| 11104-28-2 | Aroclor-1221 | 82 | U |
| 11141-16-5 | Aroclor-1232 | 40 | U |
| 53469-21-9 | Aroclor-1242 | 460 | |
| 12672-29-6 | Aroclor-1248 | 40 | U |
| 11097-69-1 | Aroclor-1254 | 40 | U |
| 11096-82-5 | Aroclor-1260 | 320 | |

2F
SOIL PESTICIDE SURROGATE RECOVERY

 Lab Name: IEA-CT Contract: _____

0018

 Lab Code: IEACT Case No.: 0219 SAS No.: _____ SDG No.: Z0219

 GC Column(1): DB-1701 ID: 0.53 (mm) GC Column(2): RTX-35 ID: 0.53 (mm)

| | EPA SAMPLE NO. | TCX %REC | 1 # | TCX %REC | 2 # | DCB %REC | 1 # | DCB %REC | 2 # | OTHER (1) | OTHER (2) | TOT OUT |
|----|-------------------|-------------|--------|-------------|--------|-------------|--------|-------------|--------|--------------|--------------|------------|
| 01 | PBLK86 | 79 | | 118 | | 100 | | 118 | | | | 0 |
| 02 | 149554-8.5/10. | 104 | | 99 | | 122 | | 103 | | | | 0 |
| 03 | 149557-16/18 | 95 | | 65 | | 114 | | 103 | | | | 0 |
| 04 | 150553-6/8 | 128 | | 89 | | 129 | | 119 | | | | 0 |
| 05 | 151553-5/7 | 101 | | 114 | | 112 | | 114 | | | | 0 |
| 06 | 151555-9/11 | 90 | | 68 | | 99 | | 701* | | | | 1 |
| 07 | 152554-7/9 | 96 | | 101 | | 112 | | 118 | | | | 0 |
| 08 | 152555-9/11 | 86 | | 91 | | 116 | | 131 | | | | 0 |
| 09 | 149554-8.5/10.MS | 106 | | 109 | | 136 | | 143 | | | | |
| 10 | 149554-8.5/10.MSD | 99 | | 102 | | 124 | | 119 | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |

ADVISORY
QC LIMITS
(60-150)
(60-150)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out



SPECIAL INSTRUCTIONS:

URNAROUND

- ☐ PECFA
☐ WILUST
☐ ACT 307
☐ REPORT DRY WT
☐ OTHER:

- ☐ 2 WEEKS (standard)
☐ 1 WEEK
☐ 3 DAYS
☐ 1 DAY

[illegible]

RECEIVED: ☐ INTACT ☐ ONICE
R. TURNER - 2 DAY (Monday is OK, 2-19-96)
2 DAY TAT (or 3 DAY if 3 day is Monday)

PROJ. MGR: *John V. G. J.*
John V. G. J.

| SIGNATURE | PRINT NAME | COMPANY / TITLE | DATE | TIME |
|-------------------------------------|-----------------|-------------------------------------|------|------|
| RELINQUISHED BY: <i>[Signature]</i> | DAVID P. CRUMBA | Montgomery Ward / Marketing Manager | 7/1 | |
| RECEIVED BY: | | | | |
| RELINQUISHED BY: | | | | |
| RECEIVED BY: | | | | |

C-O-C No. 010574

NAME OF COURIER: AIR MAIL
AIRBILL NUMBER:

F



F

GEOTECHNICAL LABORATORY RESULTS

Geotechnical Laboratory Work Set-Up Sheet

M.W Project No. 4077.0075

Job No. 95164.07

Job Name: ACS - Buffer Wall Alignment

Date 3 / 4 / 96

Location: Gr. FF. th. In ~~the~~

Sheet 3 of 3

☐ Unit Price ☐ Hourly ☐ Cost Sheet in 251 Data Storage.

Attn: V. Ruggieri

Testing Applicability

Set Up By: 7 Kungu

Type of Sample:

(Special Lab Instructions or Notes)

• X • Jar Sample

These samples are **CONTAMINATED**

• B • Bag Sample

Use Precautions

• ST • Shelby Tube

• P • Pail

[illegible]

(Please use a pencil, write legibly and space out the entries)

• Primary Sample Designation for Reporting

arks:

FALLING HEAD PERMEABILITY TEST

CGC, Inc., 1409 Emil Street, Madison, WI (608) 257-6377

PROJECT: ACS - Barrier Wall Alignment, Job No. 4077.0075
 LOCATION: Griffith, Indiana
 SAMPLE: Shelby Tube: ACS - SB 109
 DEPTH (ft) 19.0 to 21.0
 SOIL DESCRIPTION Gray Lean CLAY, Little Sand, Trace Gravel (CL)

| | <u>INITIAL</u> | <u>FINAL</u> |
|------------------------|----------------|--------------|
| SAMPLE DIAMETER (CM) | 7.34 | 7.34 |
| SAMPLE LENGTH, L (cm) | 20.60 | 20.60 |
| MOISTURE CONTENT, % | 16.4 | 16.6 |
| DRY DENSITY (lb/cu ft) | 115.7 | 115.7 |

| RUN | COEFFICIENT OF PERMEABILITY, k (cm/sec) |
|-----|-----------------------------------------|
| 1 | 2.7×10^{-4} |
| 2 | 2.4×10^{-4} |
| 3 | 2.2×10^{-4} |
| 4 | 2.0×10^{-4} |
| 5 | 2.1×10^{-4} |
| 6 | 1.7×10^{-4} |
| 7 | 1.8×10^{-4} |
| 8 | 1.7×10^{-4} |
| 9 | 1.7×10^{-4} |

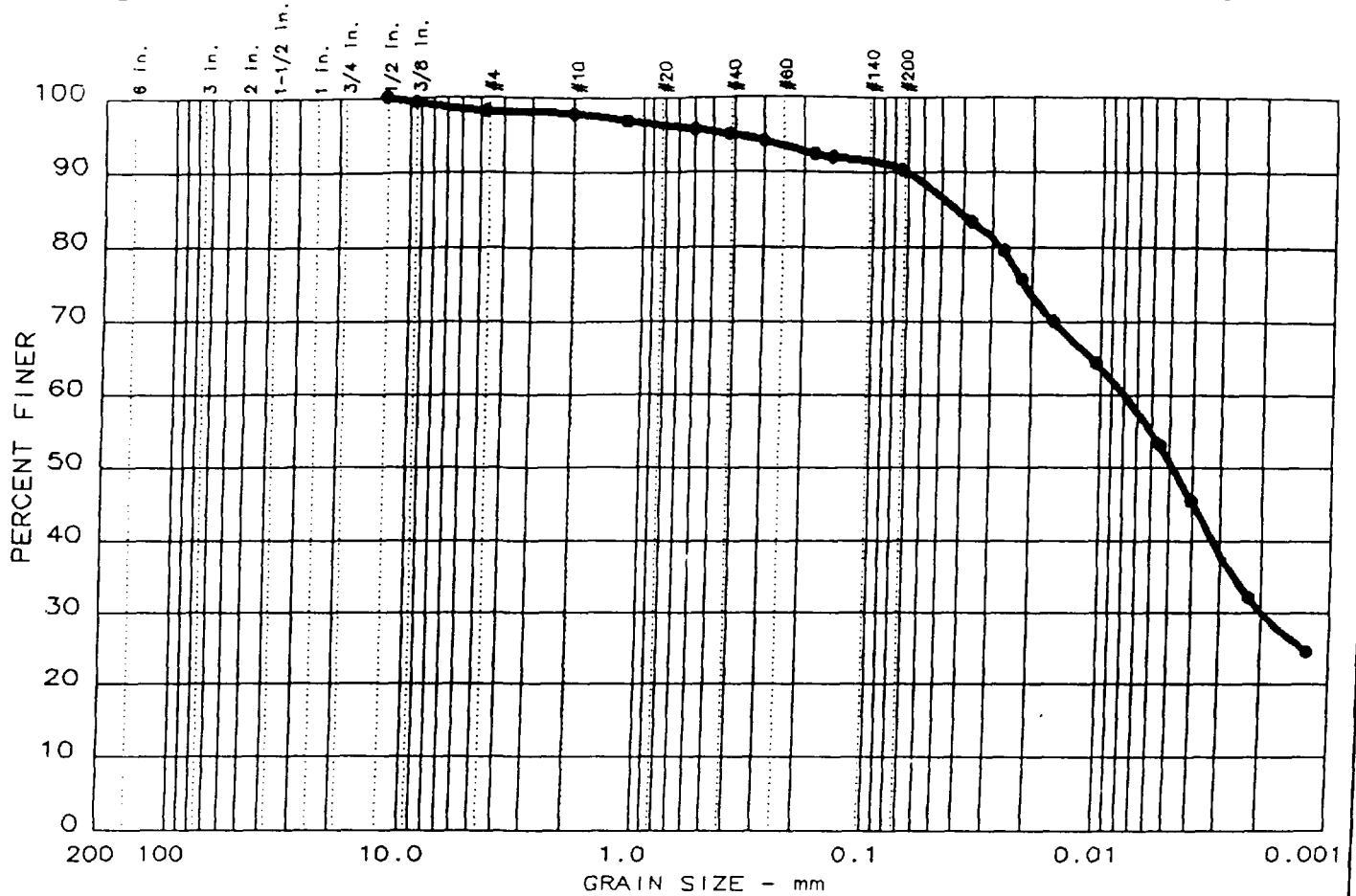
AVERAGE COEFFICIENT OF PERMEABILITY = 1.7×10^{-4} cm/sec
 (Based on run numbers 7 through 9)

FORMULA: $k = \frac{2.3aL}{At} \log_{10} \frac{h_0}{h_1}$ Where a = cross-sectional area of standpipe,
 t = time for water level to fall from initial height, h_0 , to final height, h_1
 (All other terms are defined above)

REMARKS: This permeability test was performed on a relatively undisturbed 3-inch diameter Shelby tube sample at it's natural moisture content.

CHECKED BY: [Signature] DATE: 3/18/96 APPROVED BY: MWS DATE: 3/19/96

GRAIN SIZE DISTRIBUTION TEST REPORT



| Test | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|------|-------|----------|--------|--------|--------|
| 4 | 0.0 | 1.9 | 7.9 | 39.5 | 50.7 |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|---------------------------------------------|------|--------|
| ● Gray Lean CLAY, Little Sand, Trace Gravel | CL | A-6 |

Project No.: 95164.07
Project: ACS-Barrier Wall Alignment, Griffith In
● Location: 3-inch Shelby Tube SB 109 @ 19-21 ft

Date: March 14, 1996

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

Tested BY : DWA

Input By : MES

Checked By : KJL

Approved By :

Figure No. _____

FALLING HEAD PERMEABILITY TEST

CGC, Inc., 1439 Emil Street, Madison, WI (608) 257-6377

PROJECT: ACS - Barrier Wall Alignment, Job No. 4077.0075
LOCATION: Griffith, Indiana
SAMPLE: Shelby Tube: ACS - SB 206
DEPTH (ft) 25.5 to 27.5
SOIL DESCRIPTION Gray Lean CLAY, Some Sand, Trace Gravel (CL)

| | <u>INITIAL</u> | <u>FINAL</u> |
|------------------------|----------------|--------------|
| SAMPLE DIAMETER (CM) | 7.34 | 7.34 |
| SAMPLE LENGTH, L (cm) | 22.91 | 22.91 |
| MOISTURE CONTENT, % | 18.8 | 19.1 |
| DRY DENSITY (lb/cu ft) | 110.0 | 110.0 |

| RUN | COEFFICIENT OF PERMEABILITY, k (cm/sec) |
|-----|-----------------------------------------|
| 1 | 3.3×10^{-8} |
| 2 | 2.5×10^{-8} |
| 3 | 2.6×10^{-8} |
| 4 | 2.5×10^{-8} |
| 5 | 2.2×10^{-8} |
| 6 | 2.2×10^{-8} |
| 7 | 2.0×10^{-8} |
| 8 | 2.1×10^{-8} |
| 9 | 2.0×10^{-8} |

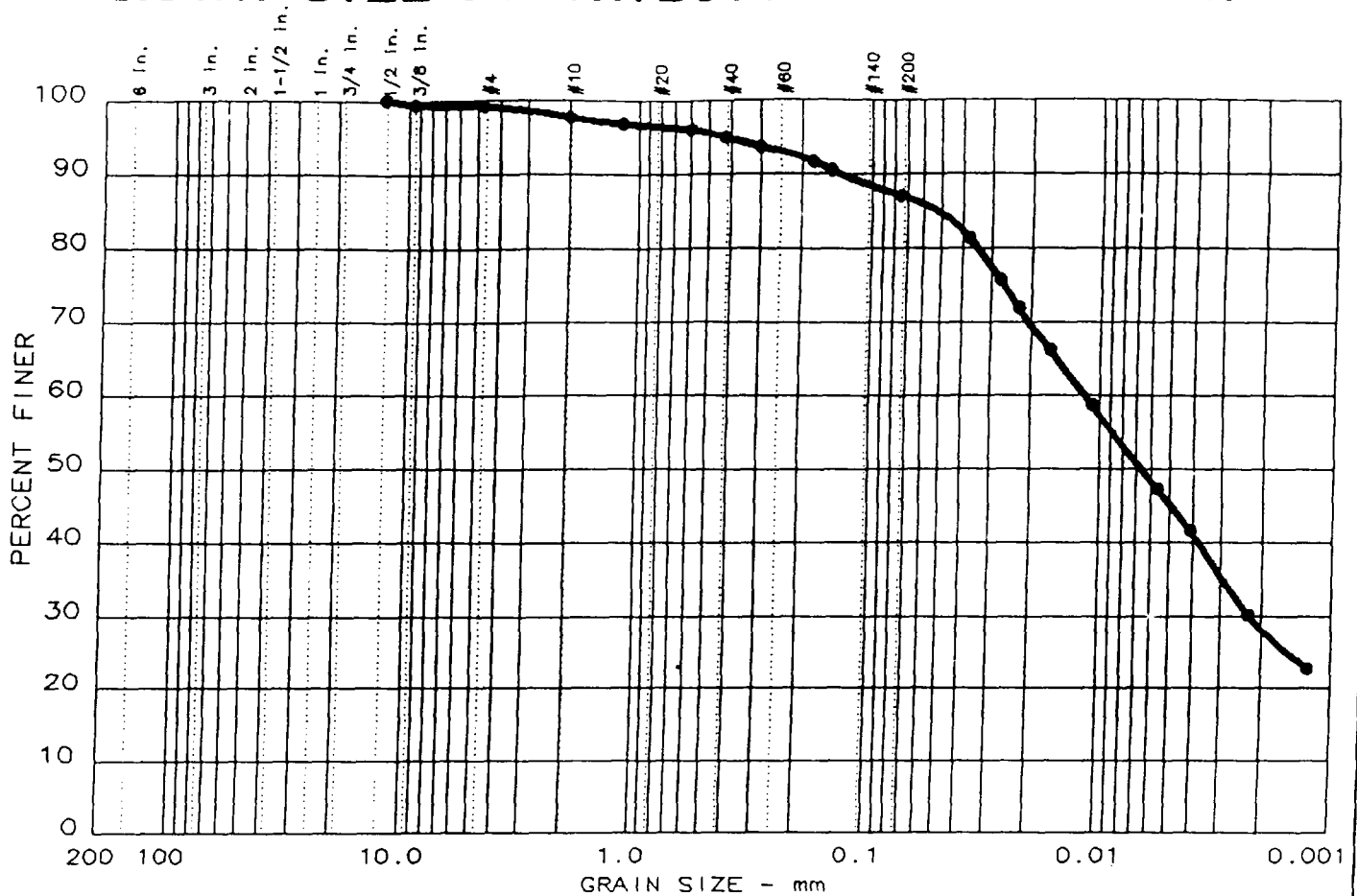
AVERAGE COEFFICIENT OF PERMEABILITY = 2.0×10^{-8} cm/sec
(Based on run numbers 7 through 9)

FORMULA: $k = \frac{2.3aL}{At} \log_{10} \frac{h_0}{h_1}$ Where a = cross-sectional area of standpipe,
t = time for water level to fall from initial height, h_0 , to final height, h_1
(All other terms are defined above)

REMARKS: This permeability test was performed on a relatively undisturbed 3-inch diameter Shelby tube sample at it's natural moisture content.

CHECKED BY: [Signature] DATE: 3/18/96 APPROVED BY: MWS DATE: 3/19/96

GRAIN SIZE DISTRIBUTION TEST REPORT



| Test | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|------|-------|----------|--------|--------|--------|
| ● 3 | 0.0 | 0.9 | 12.1 | 41.8 | 45.2 |
| | | | | | |
| | | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|------|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| ● 29 | 11 | | | 0.007 | 0.002 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-------------------------------------------|------|--------|
| ● Gray Lean CLAY, Some Sand, Trace Gravel | CL | A-6 |

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Project No.: 95164.07 Project: ACS-Barrier Wall Alignment, Griffith In ● Location: 3-inch Shelby Tube SB 206 @ 25.5-27.5 Date: March 14, 1996 | Remarks: Tested BY : DWA Input By : MES Checked By : KJL Approved By : <i>[Signature]</i> Figure No. _____ |
| GRAIN SIZE DISTRIBUTION TEST REPORT CGC, Inc. | |

FALLING HEAD PERMEABILITY TEST

CGC, Inc., 1409 Emil Street, Madison, WI (608) 257-6377

PROJECT: ACS - Barrier Wall Alignment, Job No. 4077.0075

LOCATION: Griffith, Indiana

SAMPLE: Shelby Tube: ACS - SB 151

DEPTH (ft) 23.0 to 25.0

SOIL DESCRIPTION Gray Lean CLAY, Some Sand, Trace Gravel (CL)

| | <u>INITIAL</u> | <u>FINAL</u> |
|------------------------|----------------|--------------|
| SAMPLE DIAMETER (CM) | 7.34 | 7.34 |
| SAMPLE LENGTH, L (cm) | 21.77 | 21.77 |
| MOISTURE CONTENT, % | 18.0 | 18.1 |
| DRY DENSITY (lb/cu ft) | 108.2 | 108.2 |

| RUN | COEFFICIENT OF PERMEABILITY, k (cm/sec) |
|-----|-----------------------------------------|
| 1 | 3.4×10^{-8} |
| 2 | 3.0×10^{-8} |
| 3 | 2.6×10^{-8} |
| 4 | 2.3×10^{-8} |
| 5 | 1.8×10^{-8} |
| 6 | 1.8×10^{-8} |
| 7 | 1.8×10^{-8} |
| 8 | 1.8×10^{-8} |
| 9 | 1.8×10^{-8} |

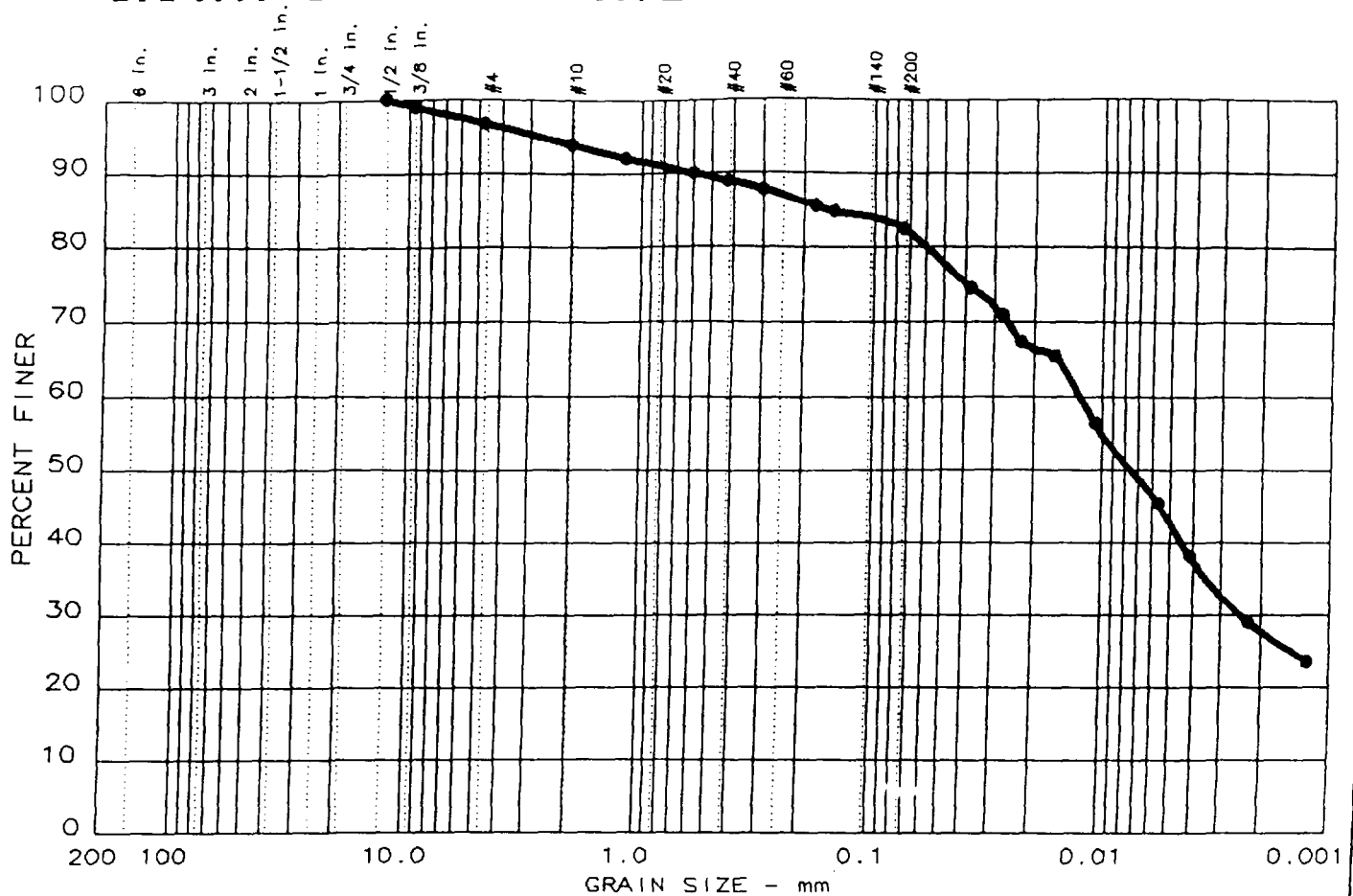
AVERAGE COEFFICIENT OF PERMEABILITY = 1.8×10^{-8} cm/sec
(Based on run numbers 7 through 9)

FORMULA: $k = \frac{2.3aL}{At} \log_{10} \frac{h_0}{h_1}$ Where a = cross-sectional area of standpipe,
t = time for water level to fall from initial height, h_0 , to final height, h_1
(All other terms are defined above)

REMARKS: This permeability test was performed on a relatively undisturbed 3-inch diameter
shelby tube sample at it's natural moisture content.

CHECKED BY: [Signature]DATE: 3/18/96APPROVED BY: [Signature]DATE: 3/19/96

GRAIN SIZE DISTRIBUTION TEST REPORT



| Test | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|------|-------|----------|--------|--------|--------|
| ● 1 | 0.0 | 3.3 | 14.3 | 39.7 | 42.7 |
| | | | | | |
| | | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|------|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| ● 28 | 12 | 0.160 | | 0.007 | 0.002 | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-------------------------------------------|------|--------|
| ● Gray Lean CLAY, Some Sand, Trace Gravel | CL | A-6 |

Project No.: 95164.07
 Project: ACS-Barrier Wall Alignment, Griffith In
 ● Location: 3-inch Shelby Tube SB 151 @ 23-25 ft

Remarks:

Tested BY : DWA

Input By : MES

Checked By : KJL

Approved By : *[Signature]*

Date: March 14, 1996

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Figure No. _____

FALLING HEAD PERMEABILITY TEST

GC, Inc., 1409 Emil Street, Madison, WI (608) 257-6377

PROJECT: ACS - Barrier Wall Alignment, Job No. 4077.0075
LOCATION: Griffith, Indiana
SAMPLE: Shelby Tube: ACS - SB 212
DEPTH (ft) 29.0 to 31.0
SOIL DESCRIPTION Gray Lean CLAY, Little Sand, Trace Gravel (CL)

| | INITIAL | FINAL |
|------------------------|---------|-------|
| SAMPLE DIAMETER (CM) | 7.34 | 7.34 |
| SAMPLE LENGTH, L (cm) | 20.83 | 20.83 |
| MOISTURE CONTENT, % | 18.5 | 18.9 |
| DRY DENSITY (lb/cu ft) | 107.6 | 107.6 |

| RUN | COEFFICIENT OF PERMEABILITY, k (cm/sec) |
|-----|-----------------------------------------|
| 1 | 3.6×10^{-8} |
| 2 | 2.9×10^{-8} |
| 3 | 2.7×10^{-8} |
| 4 | 2.5×10^{-8} |
| 5 | 2.4×10^{-8} |
| 6 | 2.3×10^{-8} |
| 7 | 2.2×10^{-8} |
| 8 | 2.5×10^{-8} |
| 9 | 2.4×10^{-8} |

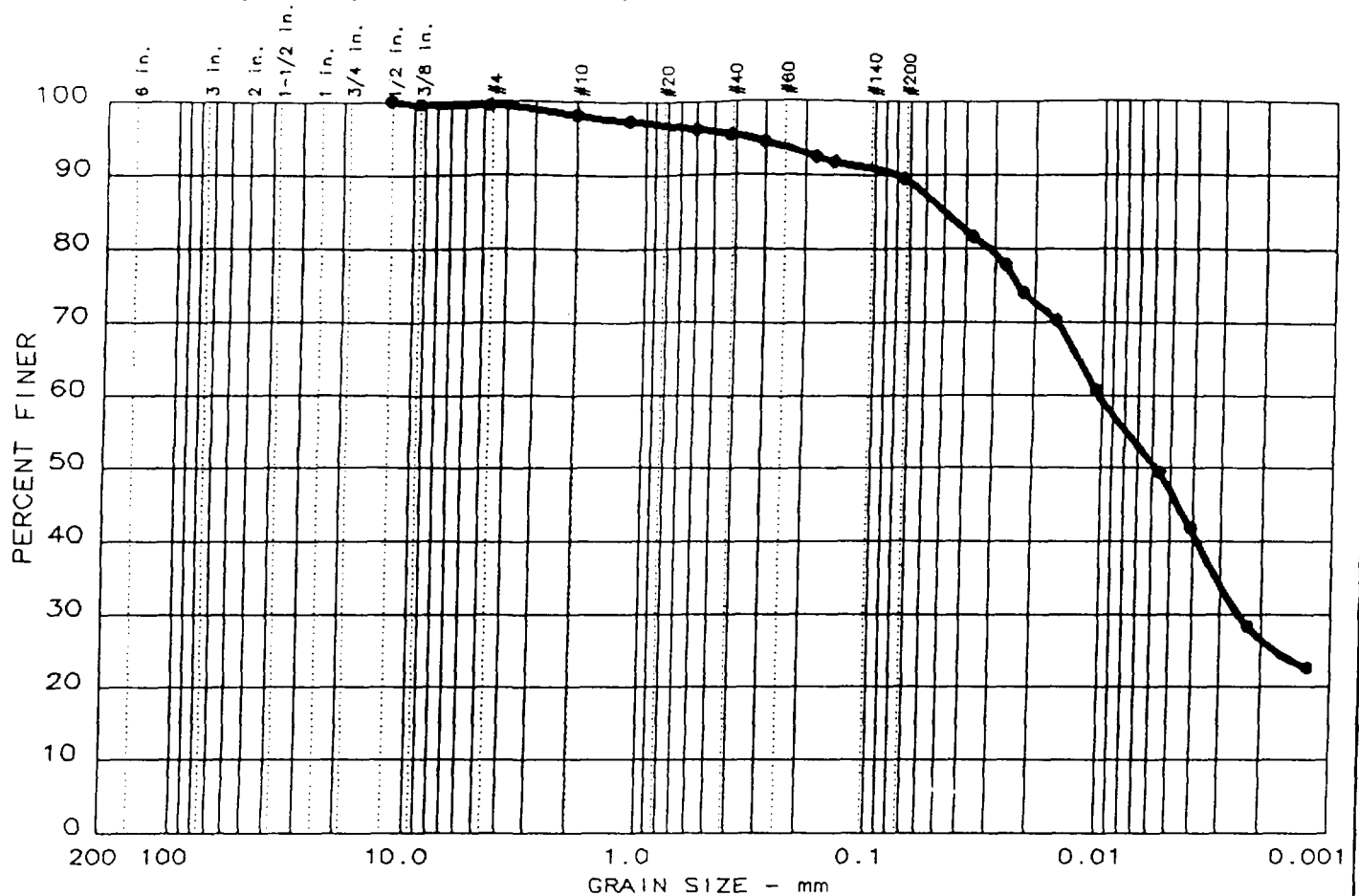
AVERAGE COEFFICIENT OF PERMEABILITY = 2.4×10^{-8} cm/sec
(Based on run numbers 7 through 9)

FORMULA: $k = \frac{2.3aL}{At} \log_{10} \frac{h_0}{h_1}$ Where a = cross-sectional area of standpipe,
t = time for water level to fall from initial height, h_0 , to final height, h_1
(All other terms are defined above)

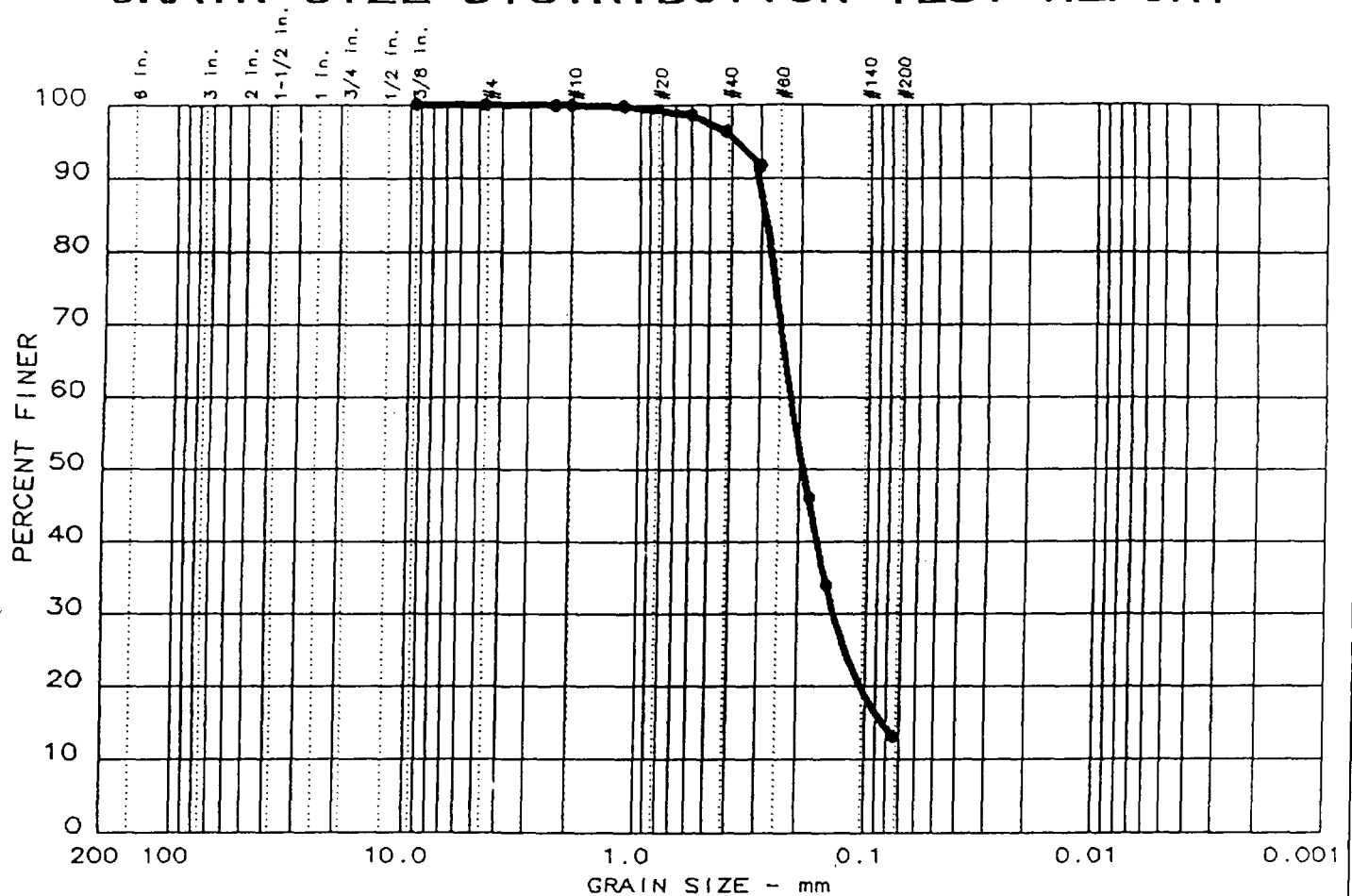
REMARKS: This permeability test was performed on a relatively undisturbed 3-inch diameter
lby tube sample at it's natural moisture content.

CHECKED BY: [Signature] DATE: 3/18/96 APPROVED BY: [Signature] DATE: 3/19/96

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 0.0 | 86.9 | 13.1 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 0.28 | 0.22 | 0.19 | 0.139 | 0.0827 | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|----------------------------------------------|------|--------|
| ● Brown Fine-Medium SAND, Some Silt and Clay | SM | - |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 ● Location: SB212/SS4

Remarks:
 TESTED BY: KJL
 INPUT BY: MES
 CHECKED BY: KJL
 APPROVED BY: *[Signature]*

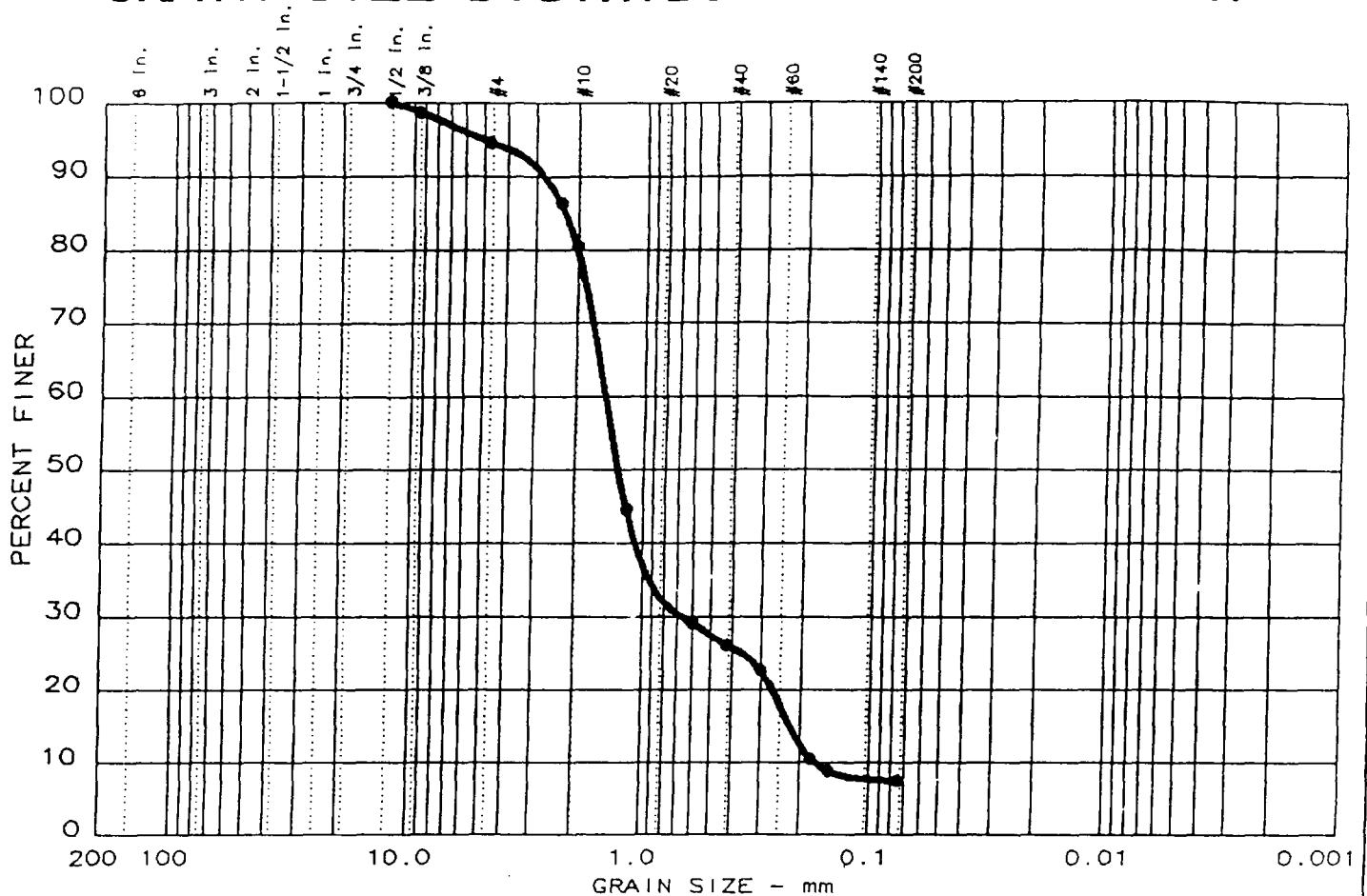
Date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 5.5 | 87.1 | 7.4 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 2.24 | 1.47 | 1.28 | 0.674 | 0.2205 | 0.1732 | 1.78 | 8.5 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|---------------------------------------------------|-------|--------|
| • Brown Fine to Coarse SAND, Little Silt & Gravel | SW-SM | |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 • Location: SB212/SS9

Date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTS BY: KJL

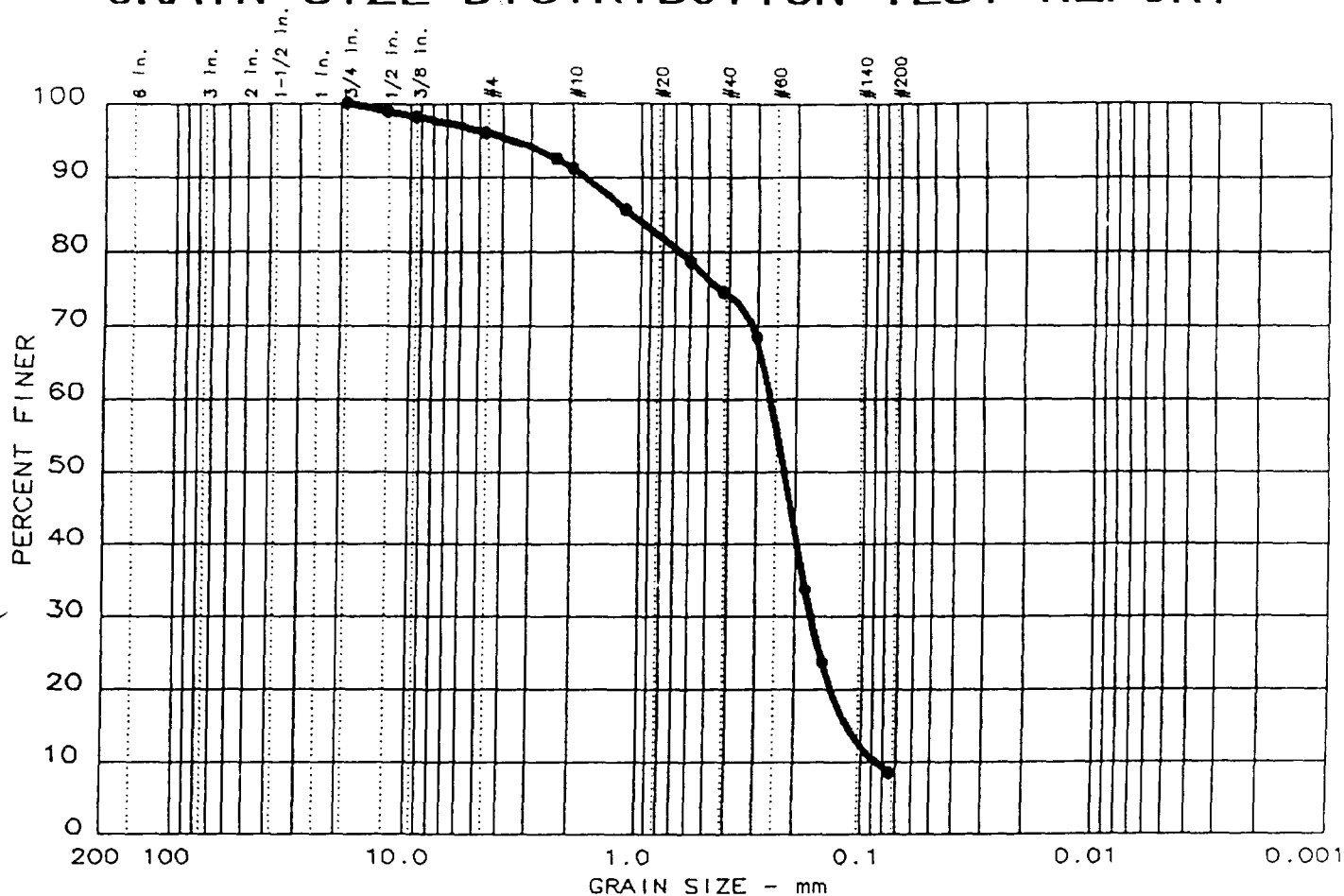
INPUT BY: MES

CHECKED BY: KJL

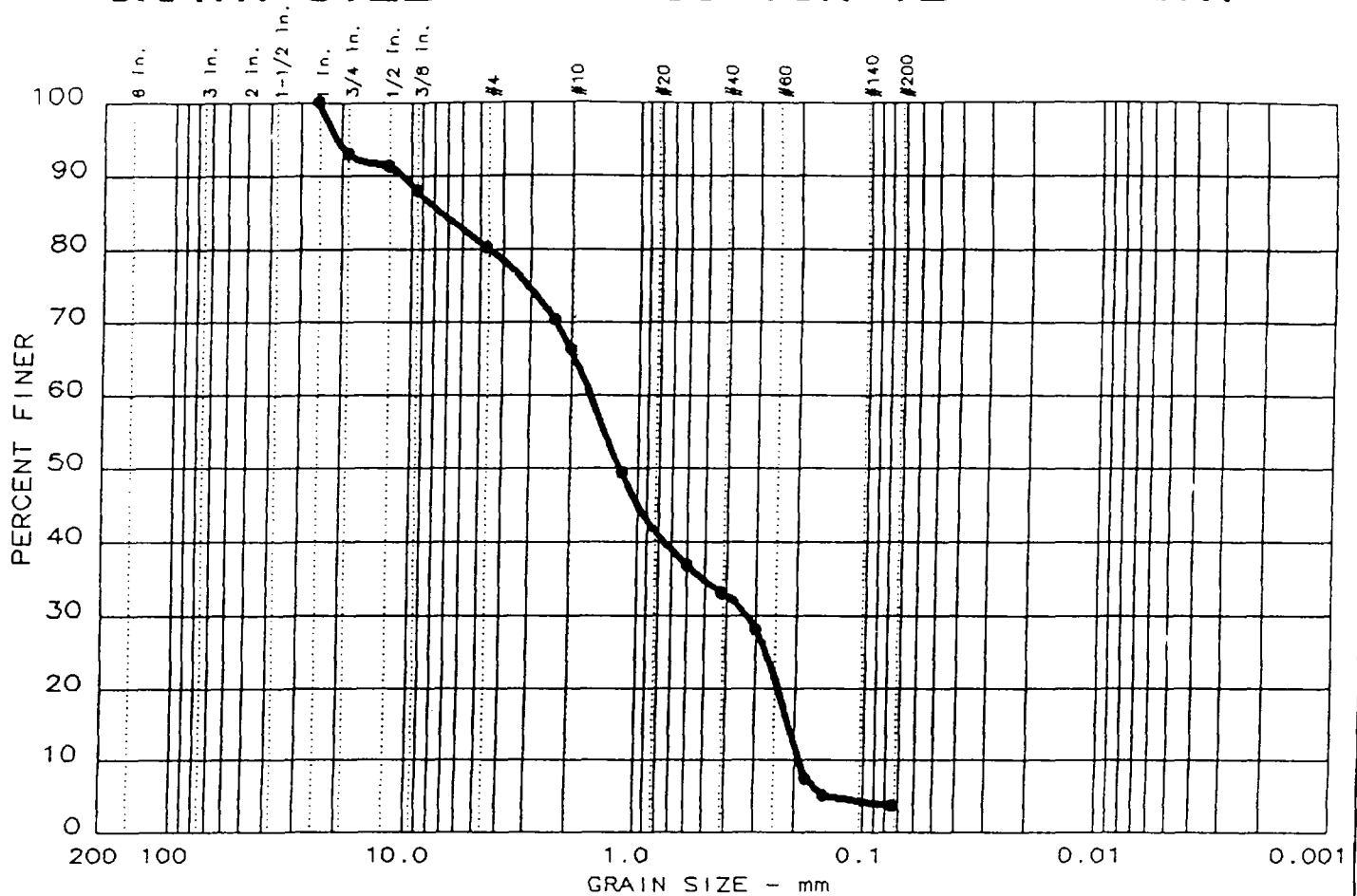
APPROVED BY: *[Signature]*

Figure No. 1

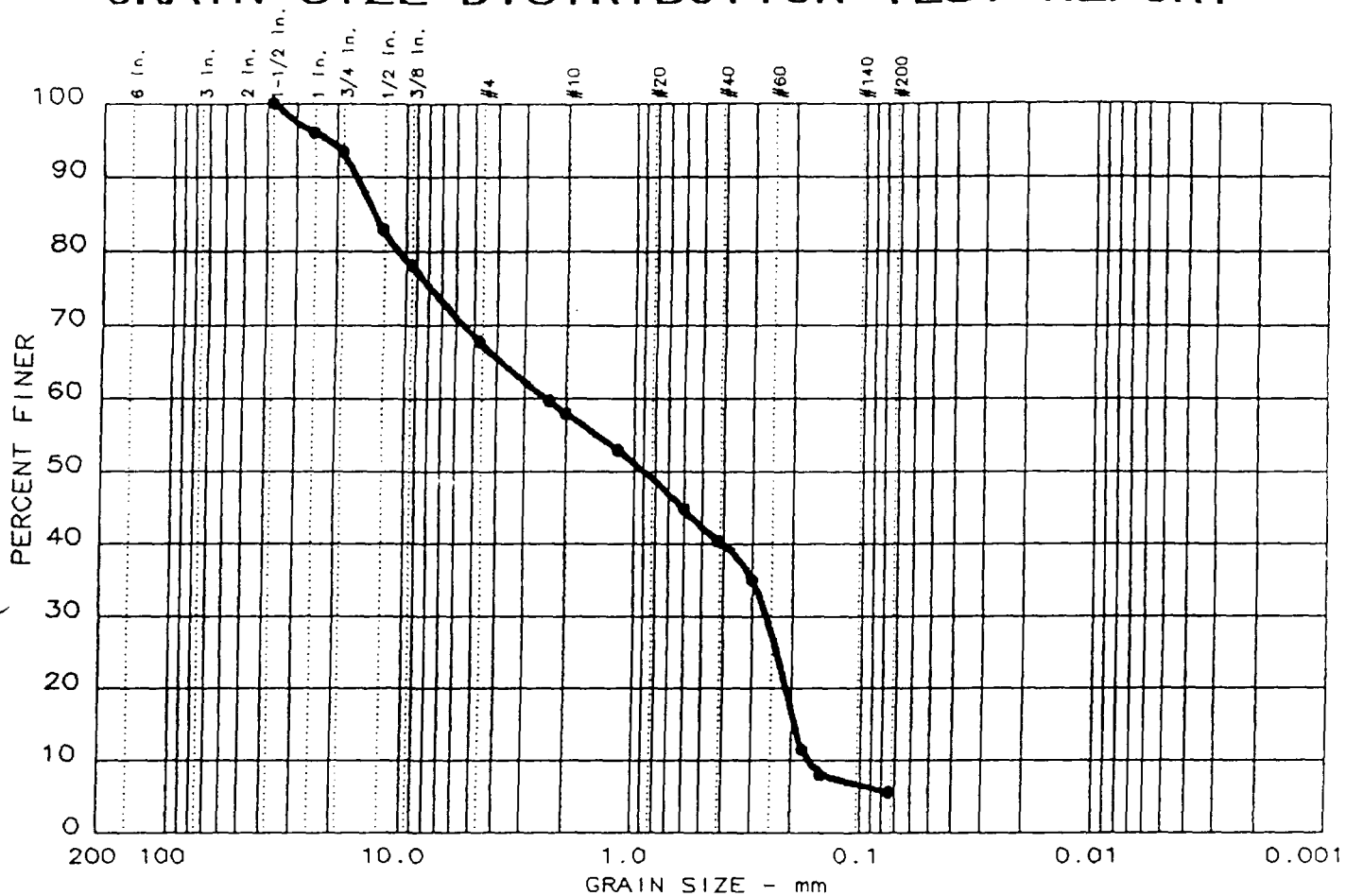
GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



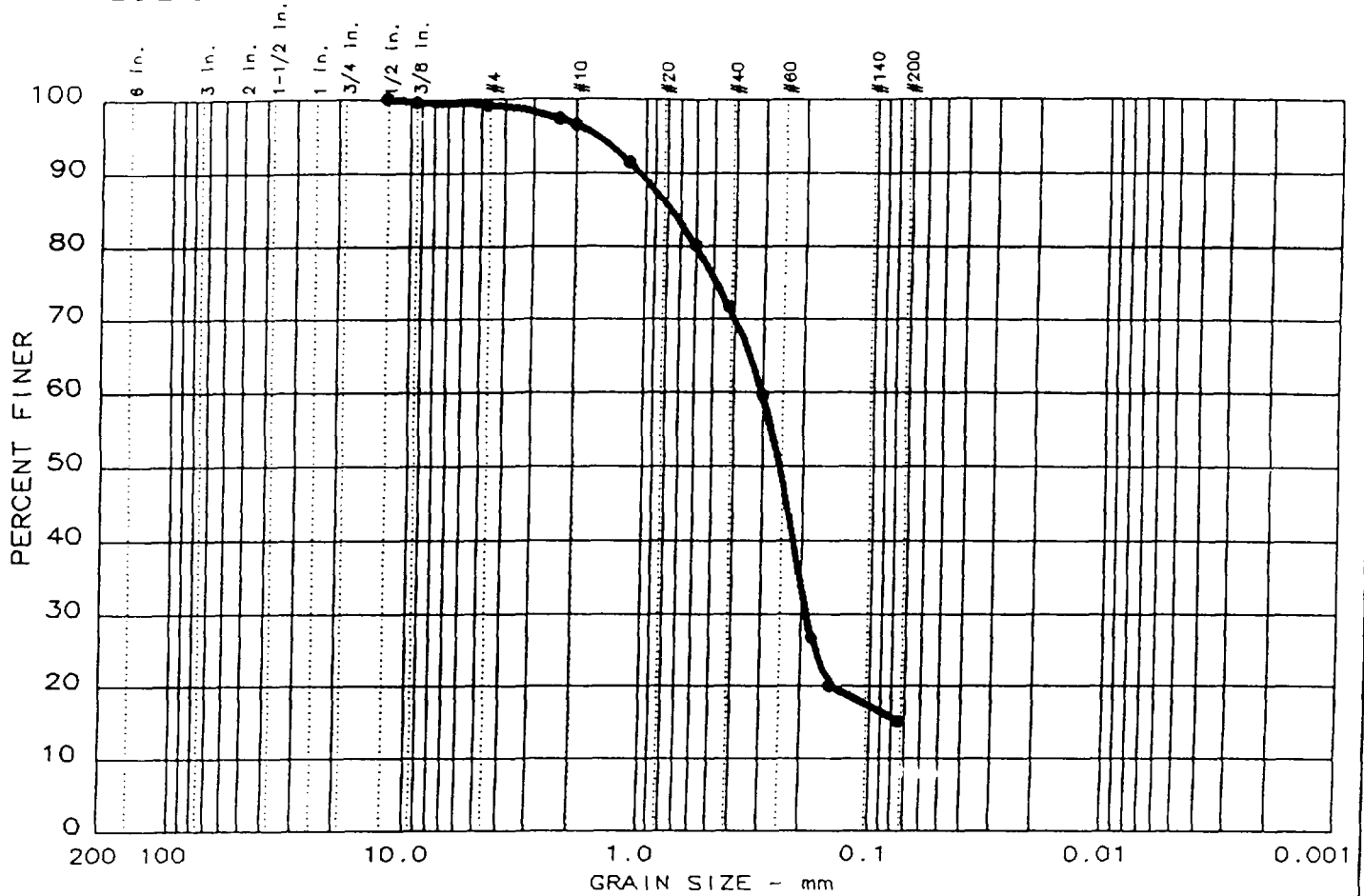
| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 32.4 | 62.1 | 5.5 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 13.79 | 2.45 | 0.90 | 0.257 | 0.1925 | 0.1658 | 0.16 | 14.8 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|------------------------------------------------|-------|--------|
| • Brown Fine-Coarse SAND, Some Gr, Little Silt | SP-SM | |

| | |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Project No.: C95164-7 Project: ACS - Barrier Wall Alignment • Location: SB217/SS4 Date: 3/5/96 | Remarks: TESTS BY: KJL INPUT BY: MES CHECKED BY: KJL APPROVED BY: <i>[Signature]</i> |
| GRAIN SIZE DISTRIBUTION TEST REPORT CGC, Inc. | Figure No. 1 |

GRAIN SIZE DISTRIBUTION TEST REPORT



| | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|---|-------|----------|--------|--------|--------|
| ● | 0.0 | 0.9 | 83.9 | 15.2 | |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|---------------------------------------------------|------|--------|
| ● Gray-Br Fine-Crse SAND, Some Silt & Clay, Tr Gr | SM | - |

Project No.: C95164-7
Project: ACS - Barrier Wall Alignment
● Location: SB217/SS10

date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT
CGC, Inc.

Remarks:

TESTED BY: KJL

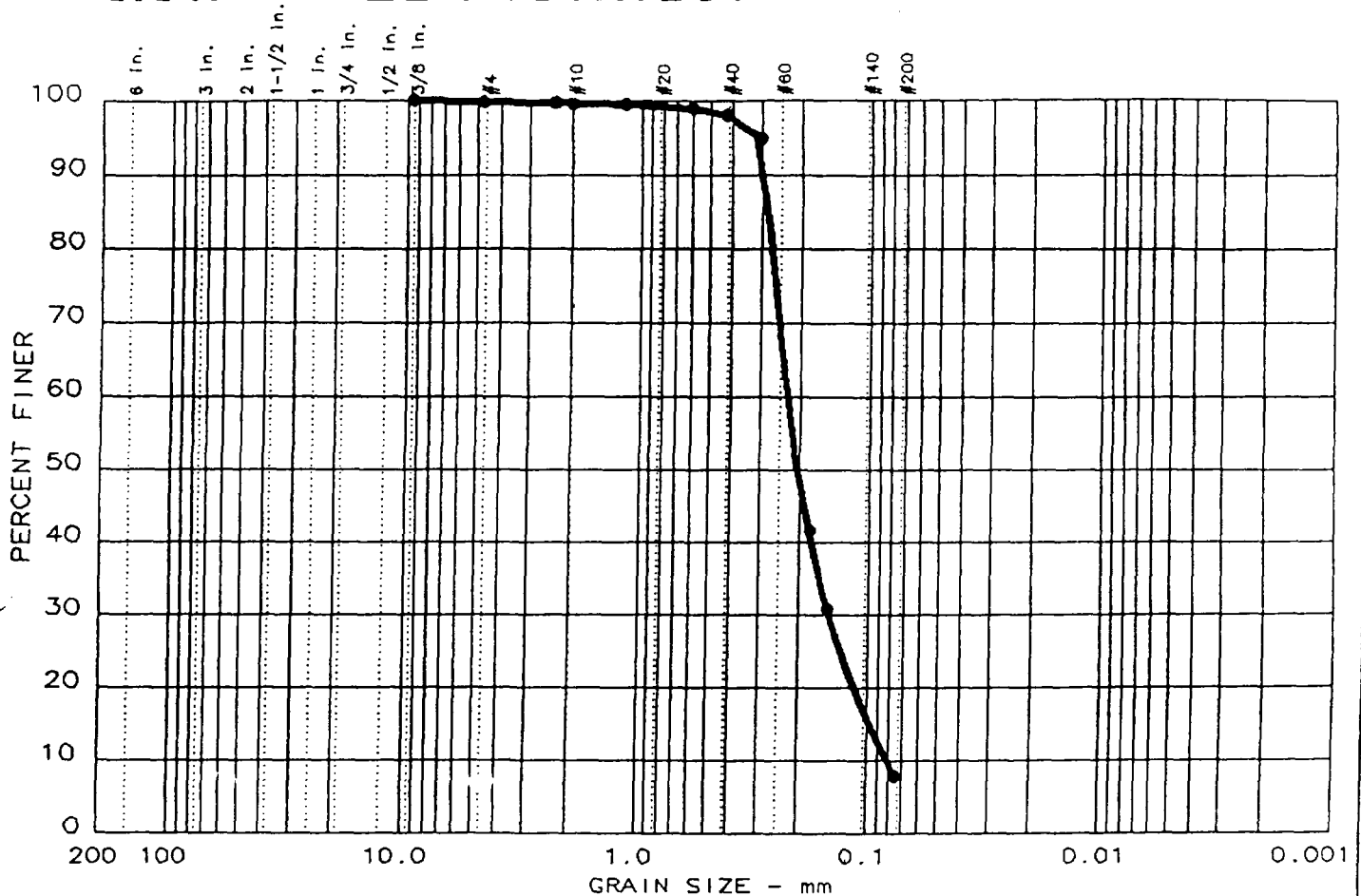
INPUT BY: MES

CHECKED BY: KJL

APPROVED BY:

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



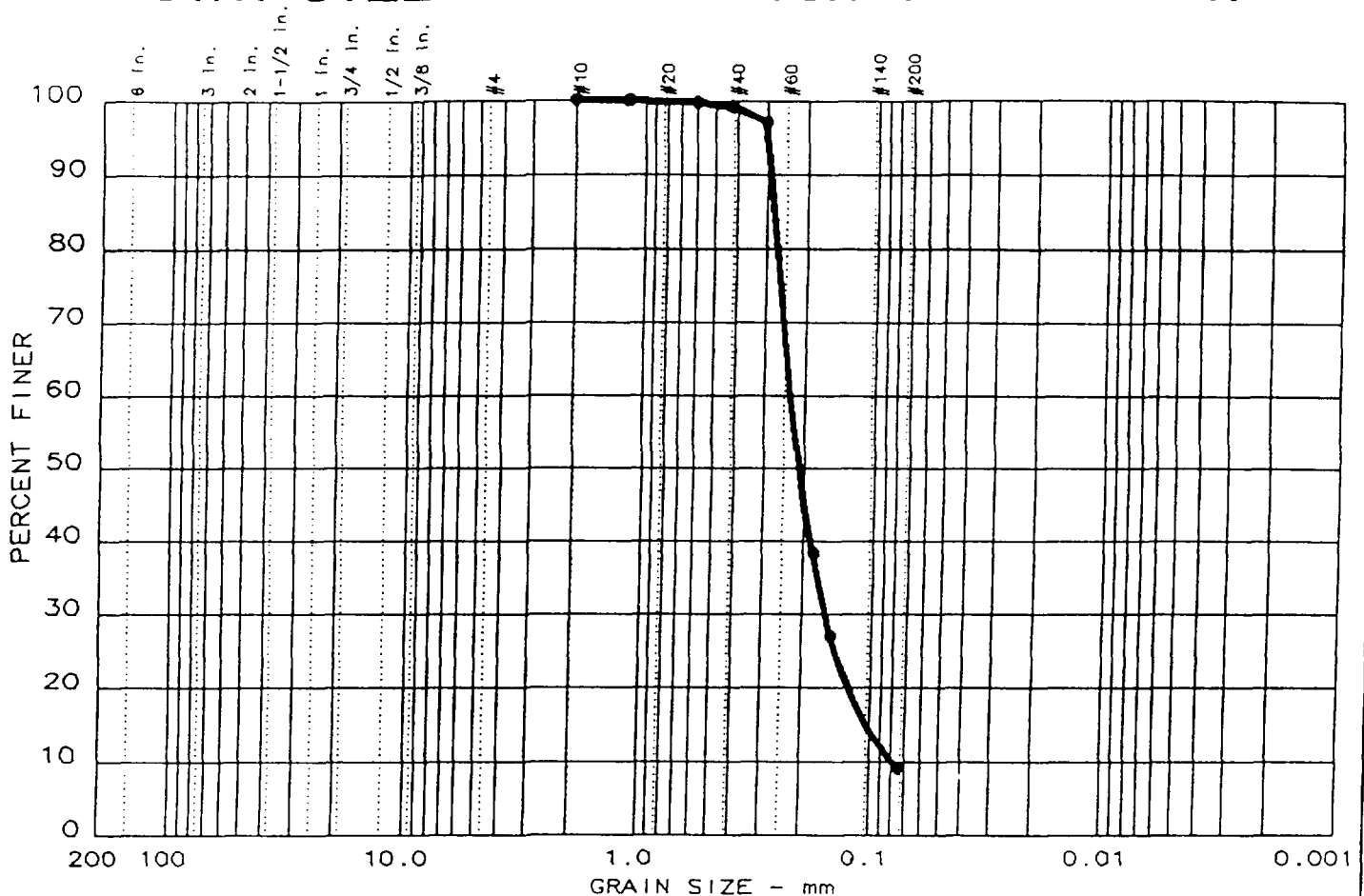
| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 0.2 | 92.0 | 7.8 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 0.28 | 0.23 | 0.20 | 0.147 | 0.0968 | 0.0812 | 1.17 | 2.8 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|---------------------------------------|-------|--------|
| • Brown Fine-Medium SAND, Little Silt | SP-SM | - |

| | |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Project No.: C95164-7 Project: ACS - Barrier Wall Alignment • Location: SB206/SS4 Date: 3/5/96 | Remarks: TESTED BY: KJL INPUT BY: MES CHECKED BY: KJL APPROVED BY: <i>[Signature]</i> |
| GRAIN SIZE DISTRIBUTION TEST REPORT CGC, Inc. | |
| Figure No. 1 | |

GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 0.0 | 90.9 | 9.1 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 0.28 | 0.23 | 0.21 | 0.159 | 0.1029 | 0.0790 | 1.40 | 2.9 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|--------------------------------|-------|--------|
| ● Brown Fine SAND, Little Silt | SP-SM | - |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 ● Location: SB206/SS7

Date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTED BY: KJL

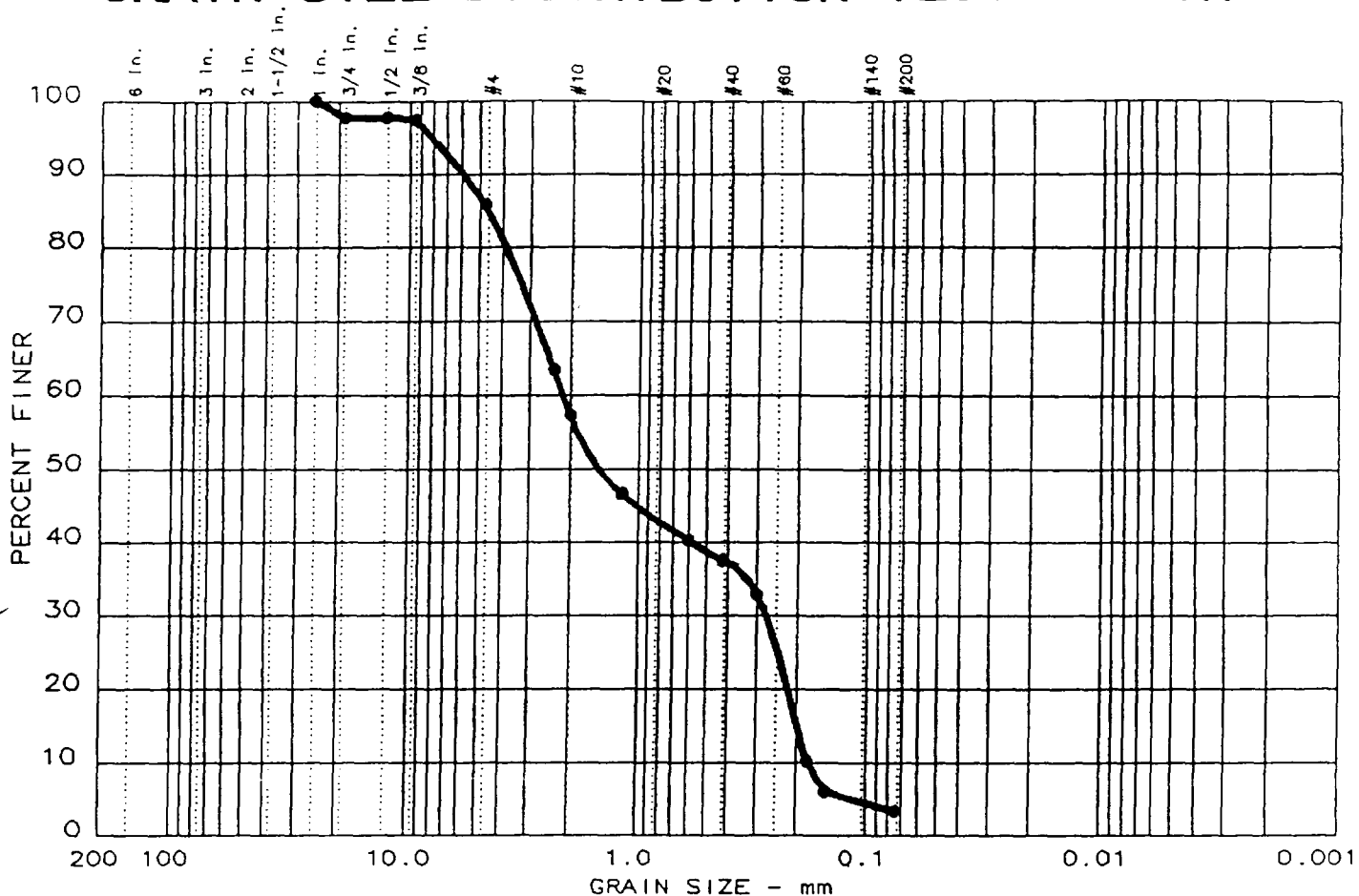
INPUT BY: MES

CHECKED BY: KJL

APPROVED BY: *[Signature]*

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|---|-------|----------|--------|--------|--------|
| ● | 0.0 | 14.2 | 82.4 | 3.4 | |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|---------------------------------------------------|------|--------|
| • Brown Fine-Coarse SAND, Some Gravel, Trace Silt | SP | - |

Project No.: C95164-7
Project: ACS - Barrier Wall Alignment
● Location: SB151/SS5

ate: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTED BY: KJL

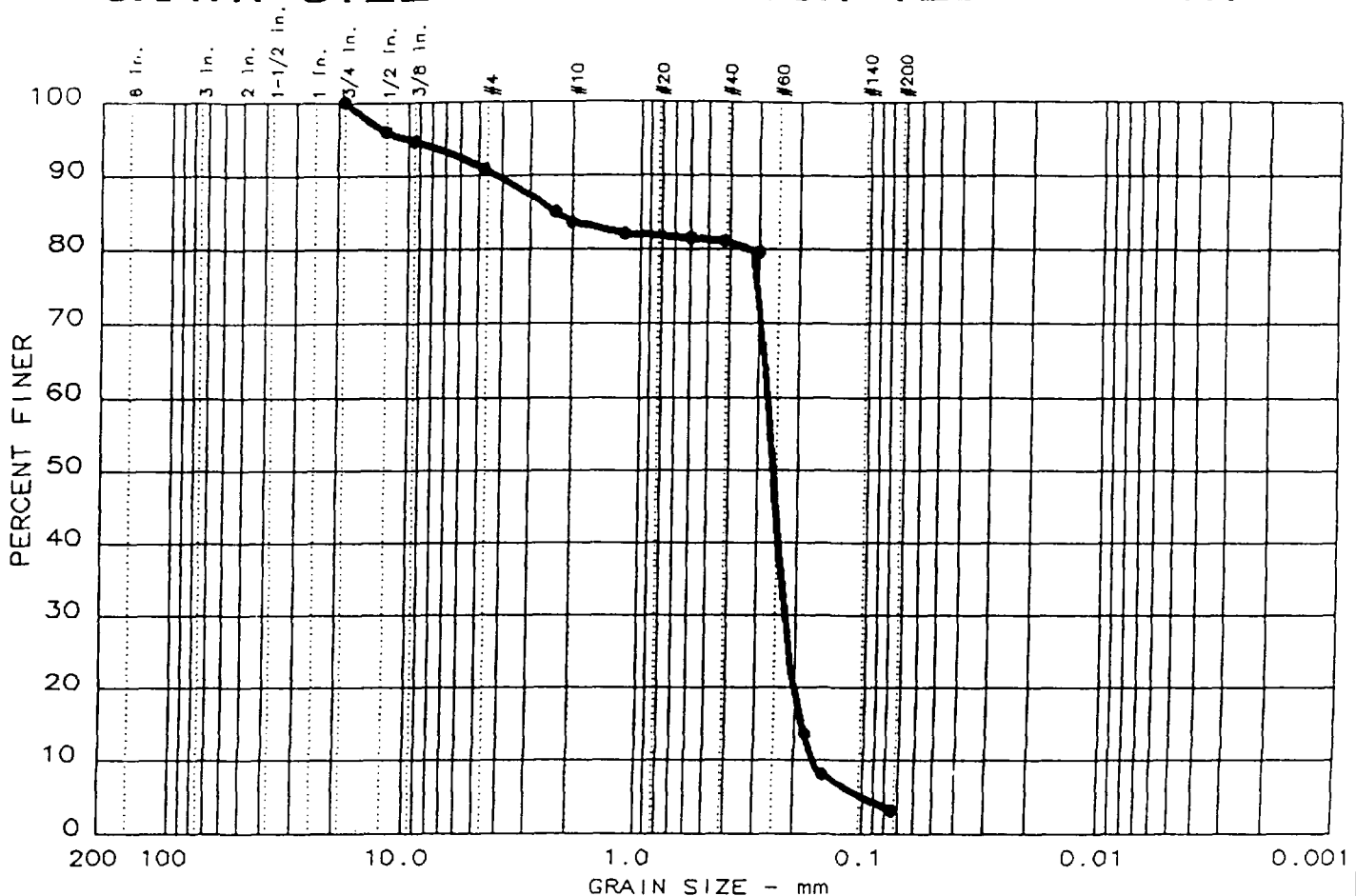
INPUT BY: MES

CHECKED BY: KJL

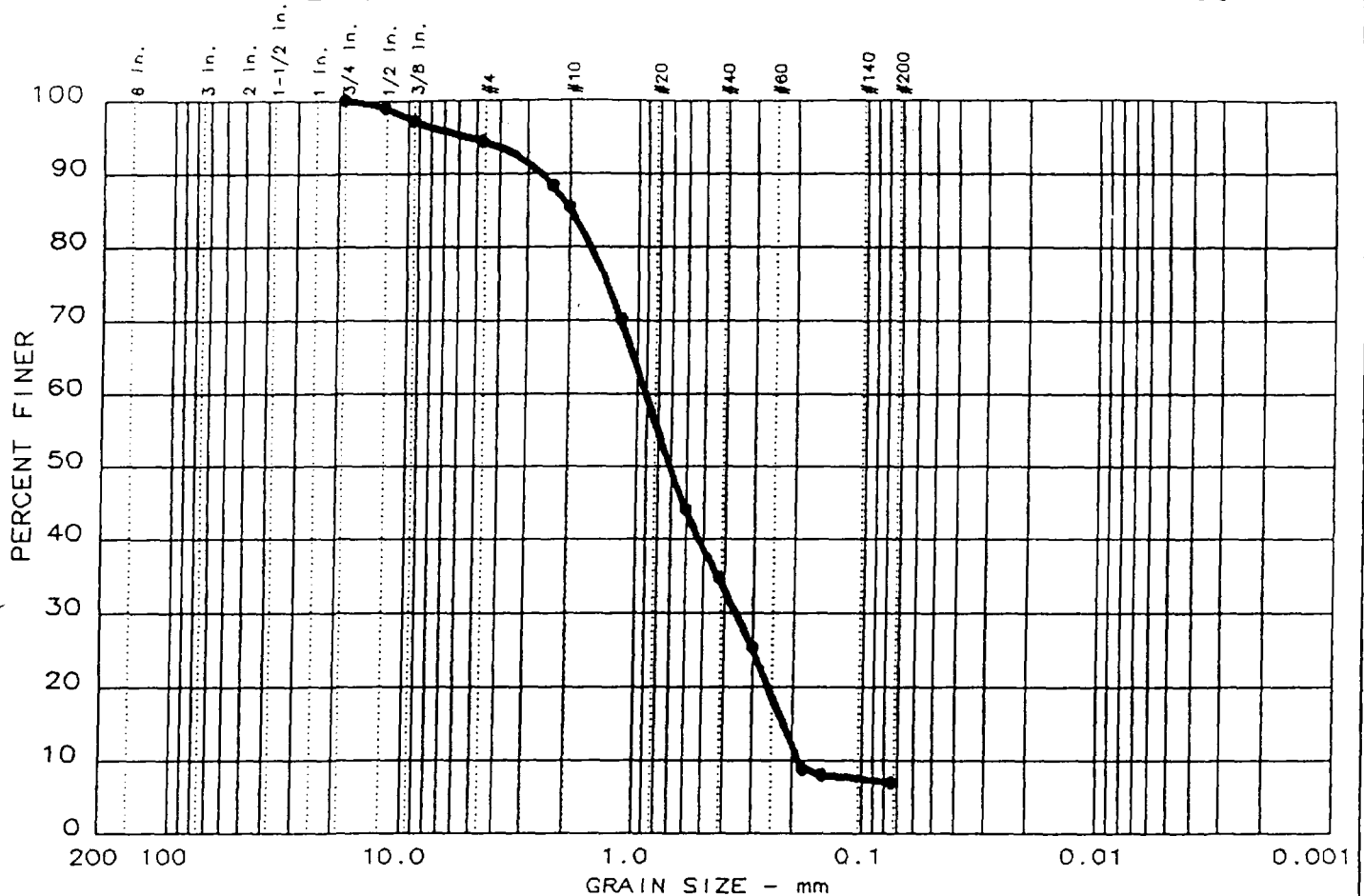
APPROVED BY:

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



| | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|---|-------|----------|--------|--------|--------|
| ● | 0.0 | 5.7 | 87.2 | 7.1 | |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|--------------------------------------------------|-------|--------|
| ● Brown Fine-Coarse SAND, Little Gravel and Silt | SP-SM | - |

Project No.: C95164-7
Project: ACS - Barrier Wall Alignment
● Location: SB152/SS3

ate: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTED BY: KJL

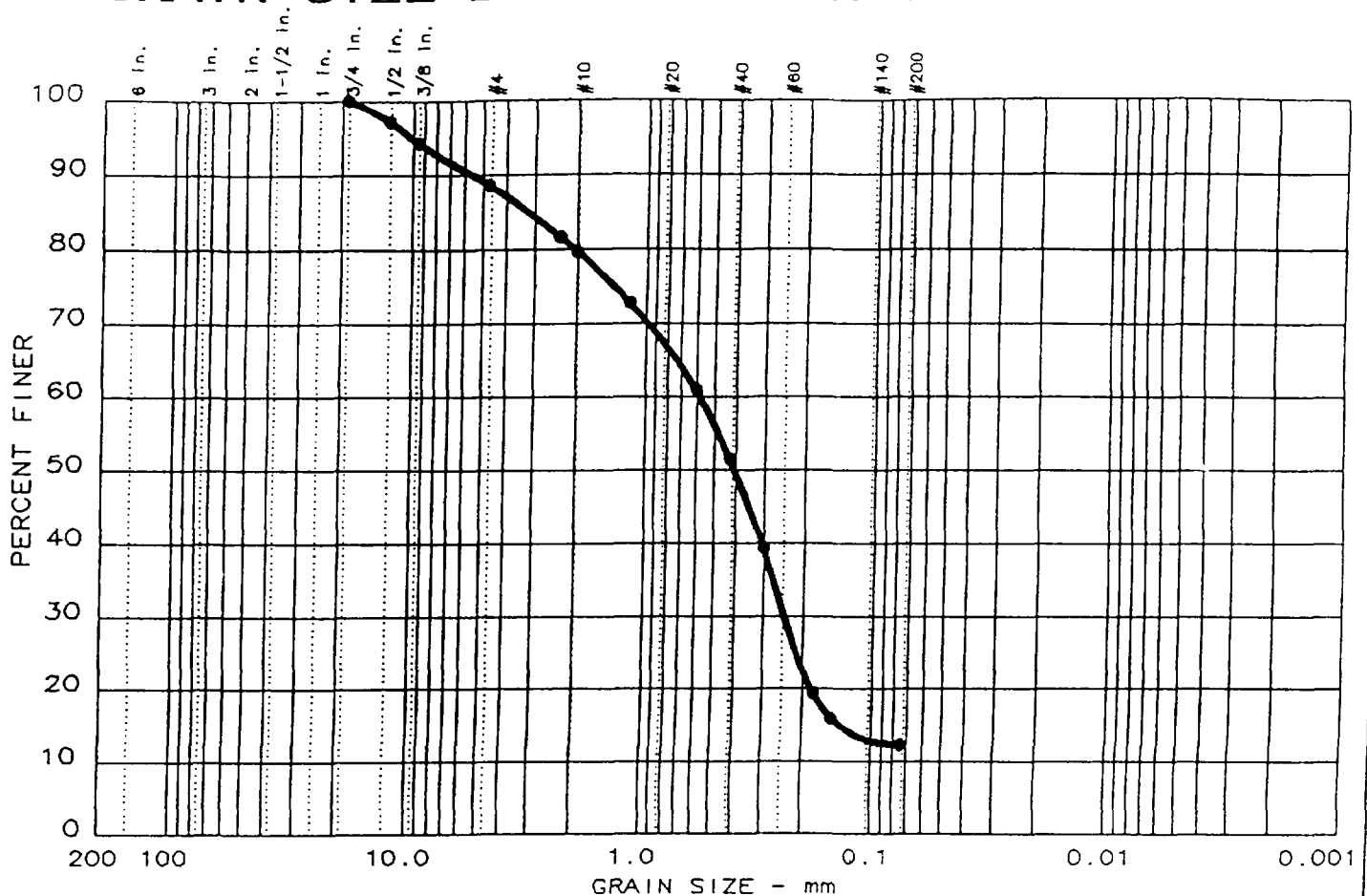
INPUT BY: MES

CHECKED BY: KJL

APPROVED BY:

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 11.5 | 76.3 | 12.2 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 3.24 | 0.58 | 0.41 | 0.241 | 0.1385 | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-------------------------------------------------|------|--------|
| ● Brown-Gray Fine-Coarse SAND, Little Silt & Gr | SM | - |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 ● Location: SB152/SS10

ate: 3/5/96

Remarks:

TESTED BY: KJL

INPUT BY: MES

CHECKED BY: KJL

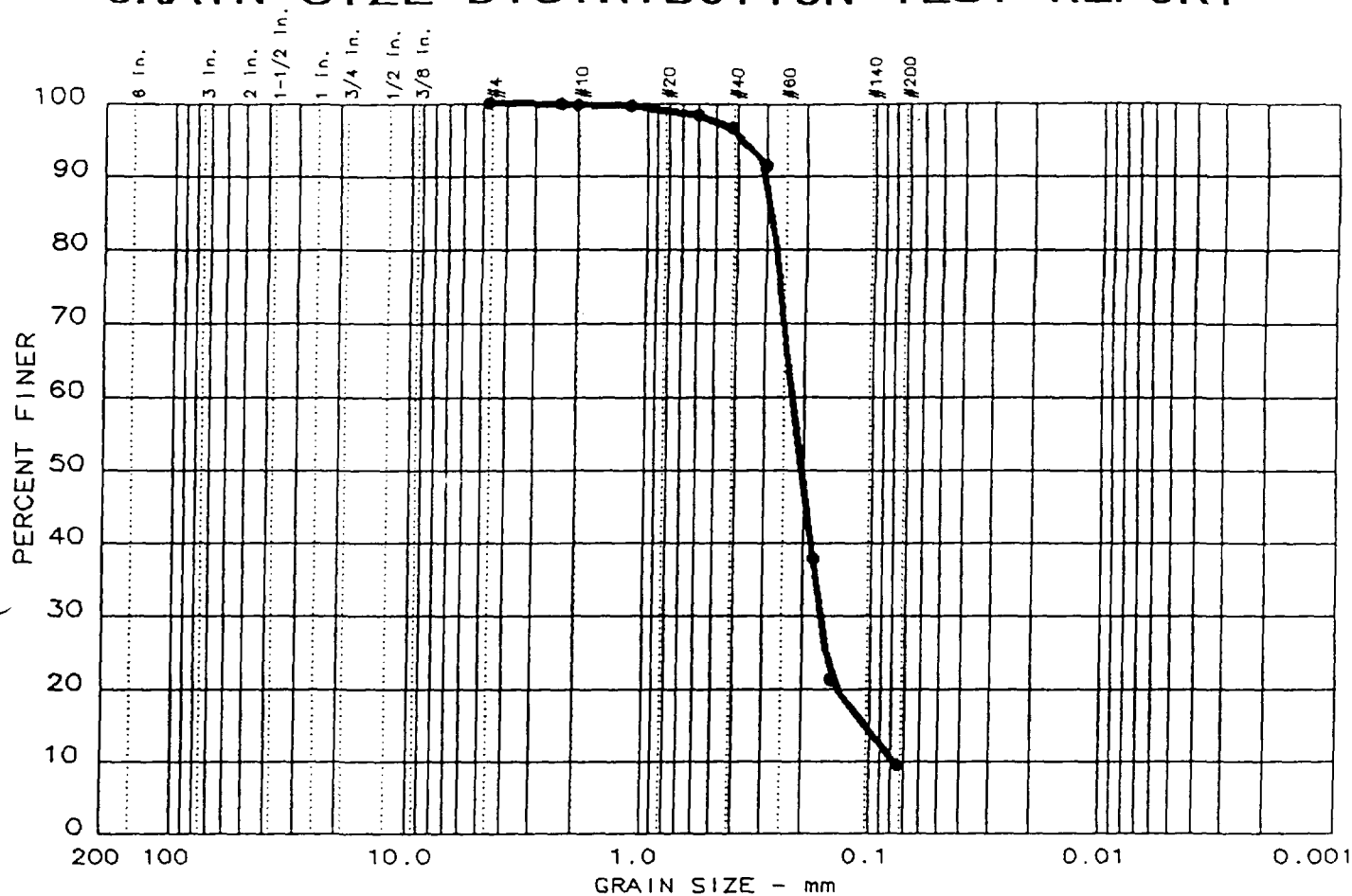
APPROVED BY: *[Signature]*

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT

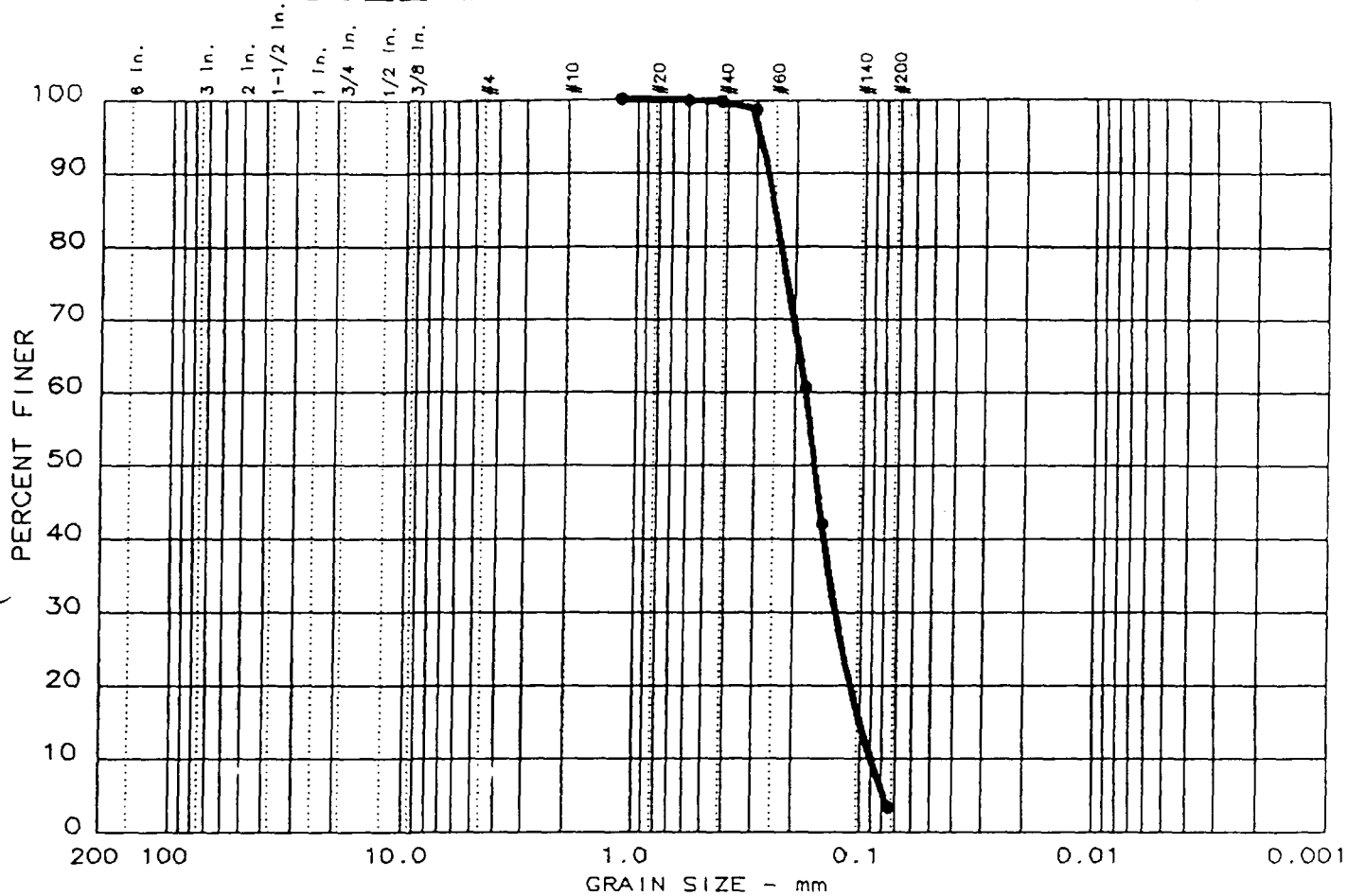


Grain size distribution curve showing Percent Finer versus Grain Size (mm). The curve indicates that approximately 100% of the material is finer than 0.425 mm and approximately 12% is finer than 0.075 mm.

| Grain Size (mm) | Percent Finer (%) |
|-----------------|-------------------|
| 200 | 100 |
| 100 | 100 |
| 60 | 100 |
| 40 | 100 |
| 20 | 100 |
| 10 | 100 |
| 4.75 | 100 |
| 2.5 | 100 |
| 1.18 | 100 |
| 0.85 | 100 |
| 0.60 | 100 |
| 0.425 | 100 |
| 0.300 | 100 |
| 0.250 | 100 |
| 0.180 | 100 |
| 0.150 | 100 |
| 0.125 | 100 |
| 0.106 | 100 |
| 0.085 | 100 |
| 0.075 | 37 |
| 0.063 | 22 |
| 0.053 | 18 |
| 0.045 | 15 |
| 0.038 | 12 |
| 0.030 | 12 |
| 0.025 | 12 |
| 0.020 | 12 |
| 0.016 | 12 |
| 0.013 | 12 |
| 0.011 | 12 |
| 0.009 | 12 |
| 0.0075 | 12 |
| 0.0060 | 12 |
| 0.0050 | 12 |
| 0.00425 | 12 |
| 0.0036 | 12 |
| 0.0030 | 12 |
| 0.0025 | 12 |
| 0.0020 | 12 |
| 0.0016 | 12 |
| 0.0013 | 12 |
| 0.0011 | 12 |
| 0.0009 | 12 |
| 0.00075 | 12 |
| 0.00060 | 12 |
| 0.00050 | 12 |
| 0.000425 | 12 |
| 0.00036 | 12 |
| 0.00030 | 12 |
| 0.00025 | 12 |
| 0.00020 | 12 |
| 0.00016 | 12 |
| 0.00013 | 12 |
| 0.00011 | 12 |
| 0.00009 | 12 |
| 0.000075 | 12 |
| 0.000060 | 12 |
| 0.000050 | 12 |
| 0.0000425 | 12 |
| 0.000036 | 12 |
| 0.000030 | 12 |
| 0.000025 | 12 |
| 0.000020 | 12 |
| 0.000016 | 12 |
| 0.000013 | 12 |
| 0.000011 | 12 |
| 0.000009 | 12 |
| 0.0000075 | 12 |
| 0.0000060 | 12 |
| 0.0000050 | 12 |
| 0.00000425 | 12 |
| 0.0000036 | 12 |
| 0.0000030 | 12 |
| 0.0000025 | 12 |
| 0.0000020 | 12 |
| 0.0000016 | 12 |
| 0.0000013 | 12 |
| 0.0000011 | 12 |
| 0.0000009 | 12 |
| 0.00000075 | 12 |
| 0.00000060 | 12 |
| 0.00000050 | 12 |
| 0.000000425 | 12 |
| 0.00000036 | 12 |
| 0.00000030 | 12 |
| 0.00000025 | 12 |
| 0.00000020 | 12 |
| 0.00000016 | 12 |
| 0.00000013 | 12 |
| 0.00000011 | 12 |
| 0.00000009 | 12 |
| 0.000000075 | 12 |
| 0.000000060 | 12 |
| 0.000000050 | 12 |
| 0.0000000425 | 12 |
| 0.000000036 | 12 |
| 0.000000030 | 12 |
| 0.000000025 | 12 |
| 0.000000020 | 12 |
| 0.000000016 | 12 |
| 0.000000013 | 12 |
| 0.000000011 | 12 |
| 0.000000009 | 12 |
| 0.0000000075 | 12 |
| 0.0000000060 | 12 |
| 0.0000000050 | 12 |
| 0.00000000425 | 12 |
| 0.0000000036 | 12 |
| 0.0000000030 | 12 |
| 0.0000000025 | 12 |
| 0.0000000020 | 12 |
| 0.0000000016 | 12 |
| 0.0000000013 | 12 |
| 0.0000000011 | 12 |
| 0.0000000009 | 12 |
| 0.00000000075 | 12 |
| 0.00000000060 | 12 |
| 0.00000000050 | 12 |
| 0.000000000425 | 12 |
| 0.00000000036 | 12 |
| 0.00000000030 | 12 |
| 0.00000000025 | 12 |
| 0.00000000020 | 12 |
| 0.00000000016 | 12 |
| 0.00000000013 | 12 |
| 0.00000000011 | 12 |
| 0.00000000009 | 12 |
| 0.000000000075 | 12 |
| 0.000000000060 | 12 |
| 0.000000000050 | 12 |
| 0.0000000000425 | 12 |
| 0.00000 | |

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|---|-------|----------|--------|--------|--------|
| ● | 0.0 | 0.0 | 96.6 | 3.4 | |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-------------------------------|------|--------|
| • Brown Fine SAND, Trace Silt | SP | - |

Project No.: C95164-7
Project: ACS - Barrier Wall Alignment
● Location: SB109/SS3

date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTED BY: KJL

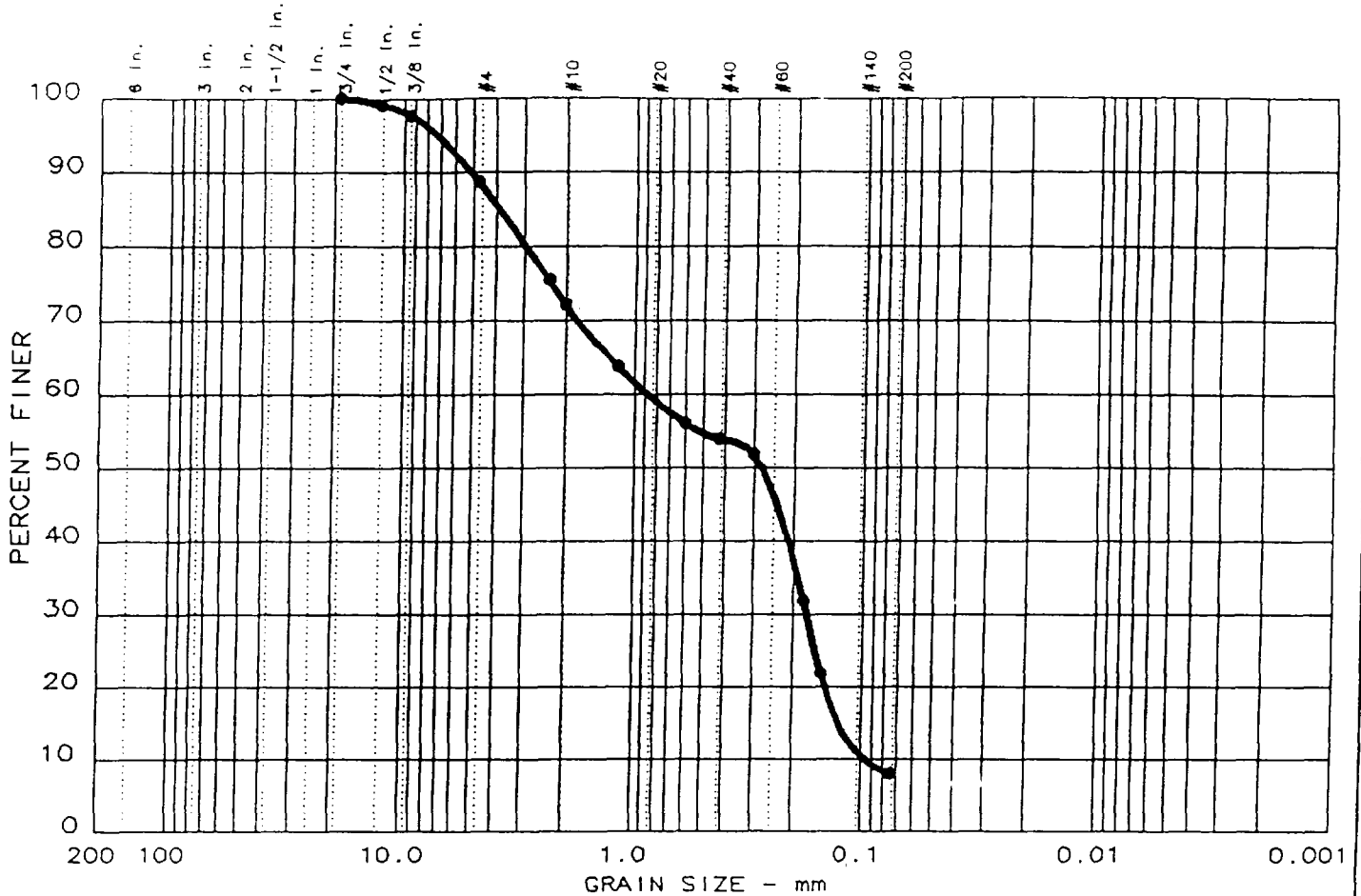
INPUT BY: MES

CHECKED BY: KJL

APPROVED BY:

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|---|-------|----------|--------|--------|--------|
| ● | 0.0 | 11.4 | 80.6 | 8.0 | |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-----------------------------------------------|-------|--------|
| ● Gray Fine-Coarse SAND, Little Gravel & Silt | SP-SM | 4 |

Project No.: C95164-7
Project: ACS - Barrier Wall Alignment
● Location: SB109/SS8

ate: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTED BY: KJL

INPUT BY: MES

CHECKED BY: KJL


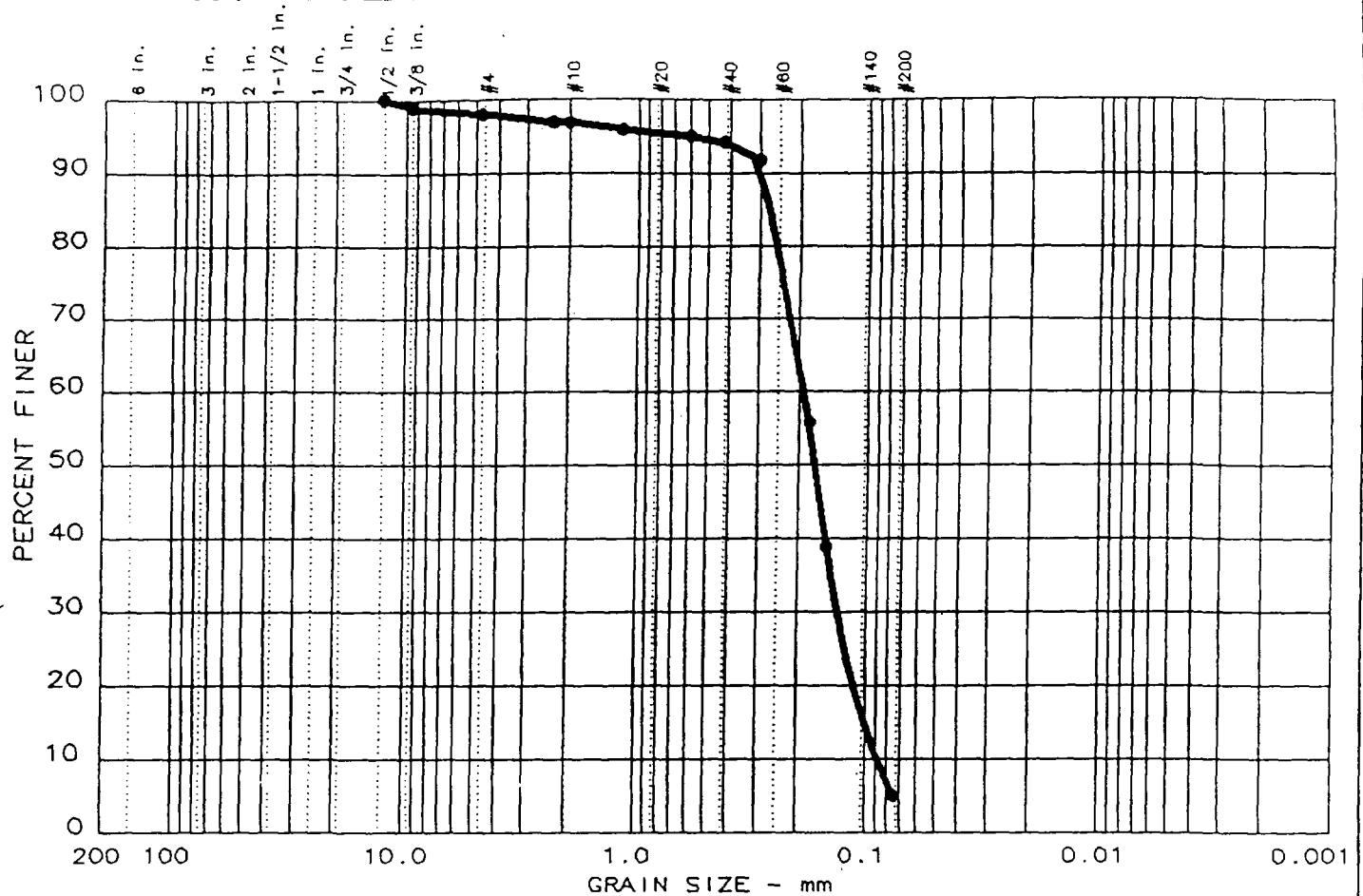
APPROVED BY: 

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 2.0 | 93.0 | 5.0 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 0.27 | 0.19 | 0.17 | 0.134 | 0.1001 | 0.0872 | 1.08 | 2.2 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-----------------------------------------------|-------|--------|
| ● Brown Fine-Coarse SAND, Trace Gravel & Silt | SP-SM | - |
| | | |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 ● Location: SB136/SS2

Remarks:
 TESTED BY: KJL
 INPUT BY: MES
 CHECKED BY: KJL
 APPROVED BY: *[Signature]*

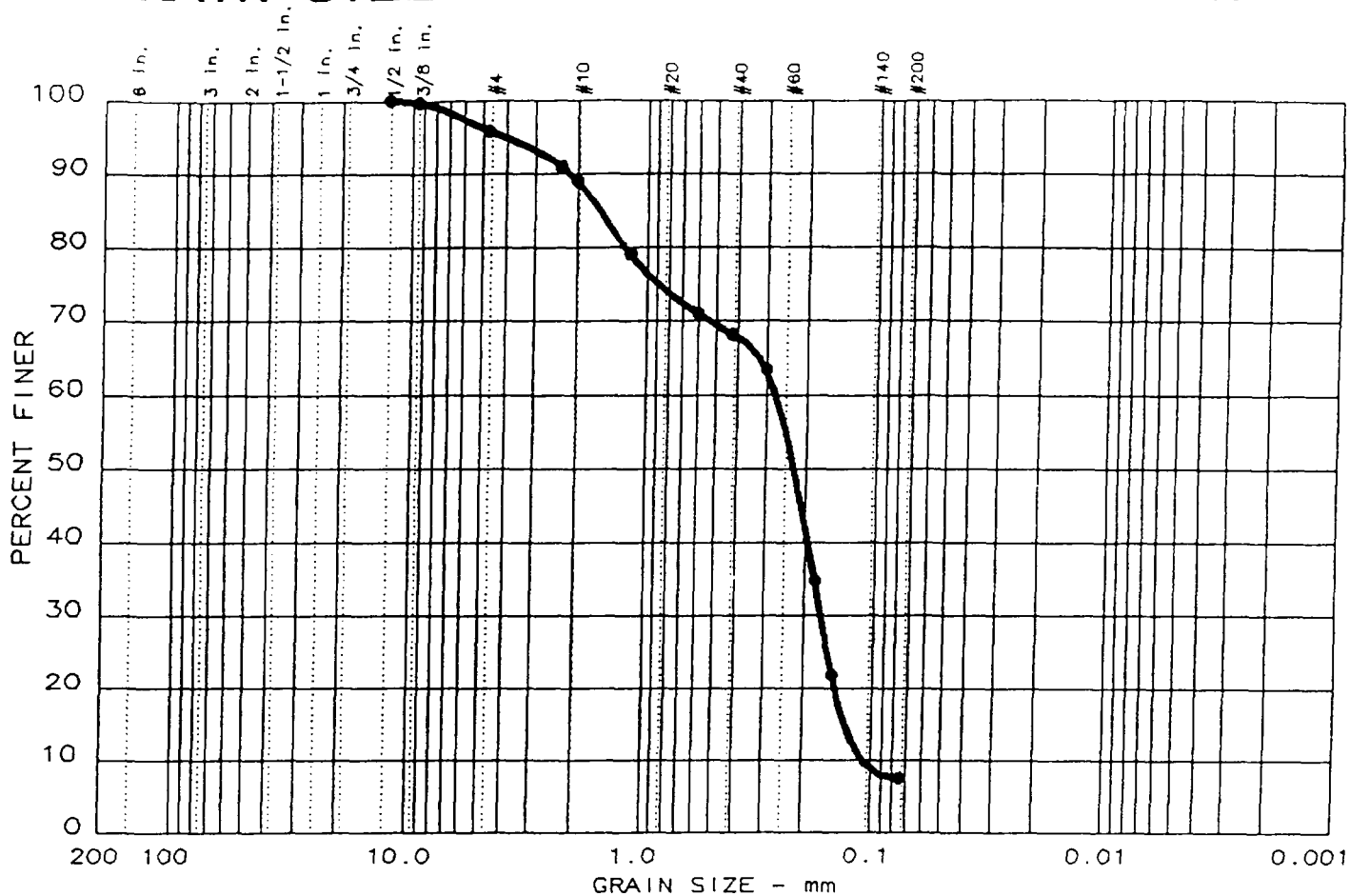
Date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

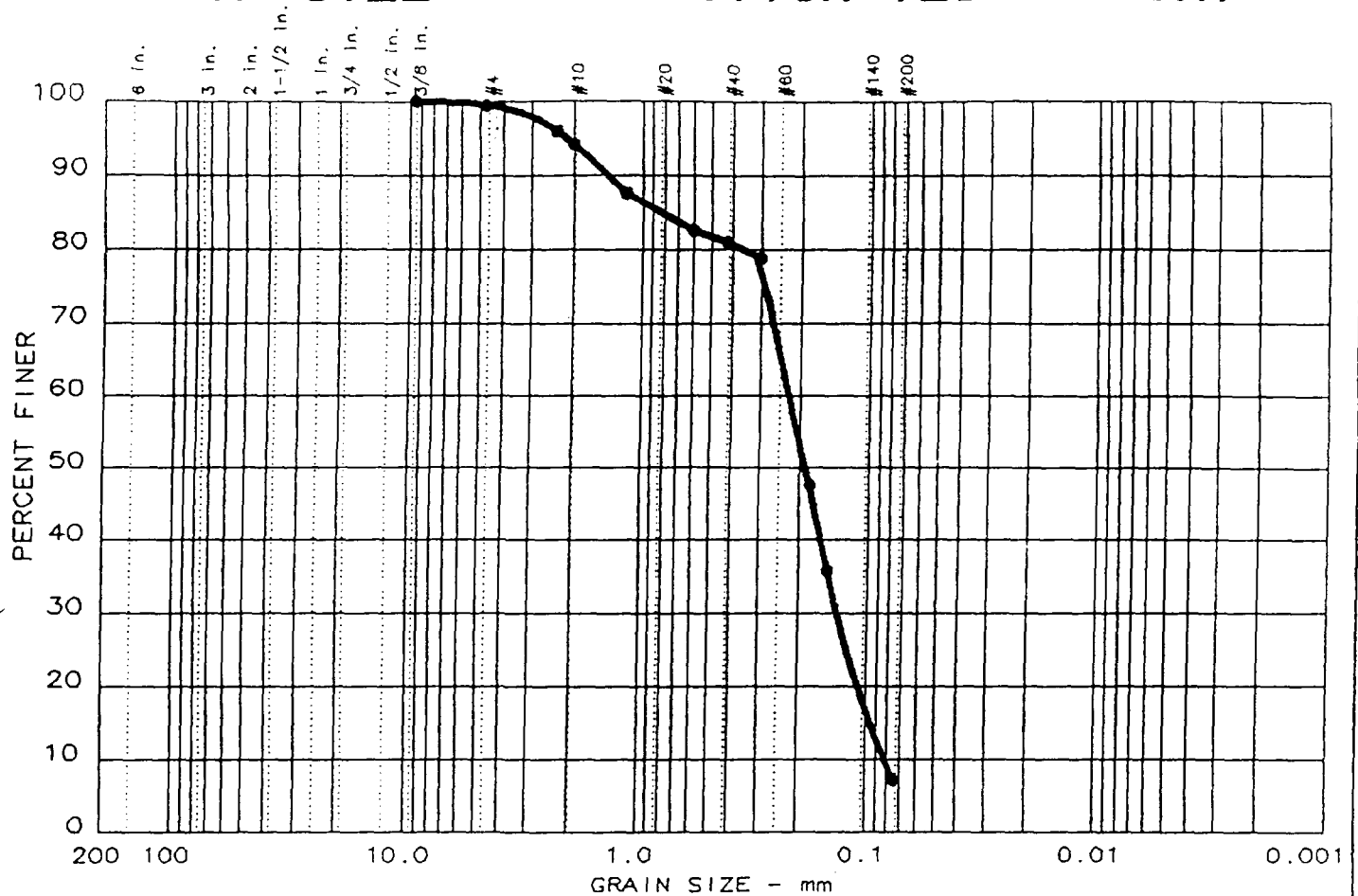
CGC, Inc.

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 0.5 | 92.3 | 7.2 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 0.83 | 0.22 | 0.19 | 0.135 | 0.0944 | 0.0813 | 1.00 | 2.8 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|--------------------------------------------------|-------|--------|
| ● Brown Fine-Coarse SAND, Tr Gravel, Little Silt | SP-SM | - |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 ● Location: SB113/SS5

Remarks:
 TESTED BY: KJL
 INPUT BY: MES
 CHECKED BY: KJL
 APPROVED BY: *[Signature]*

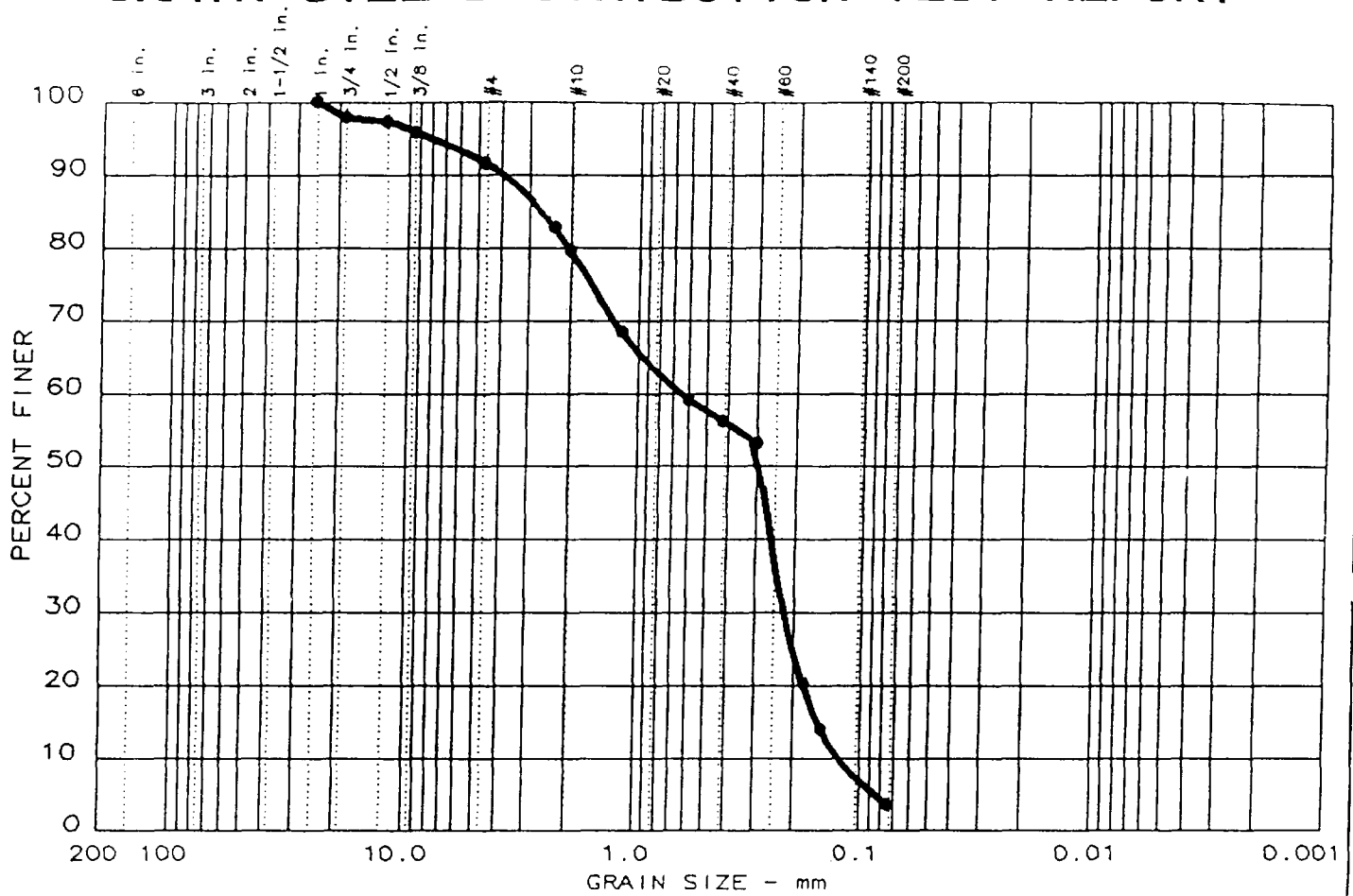
ate: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

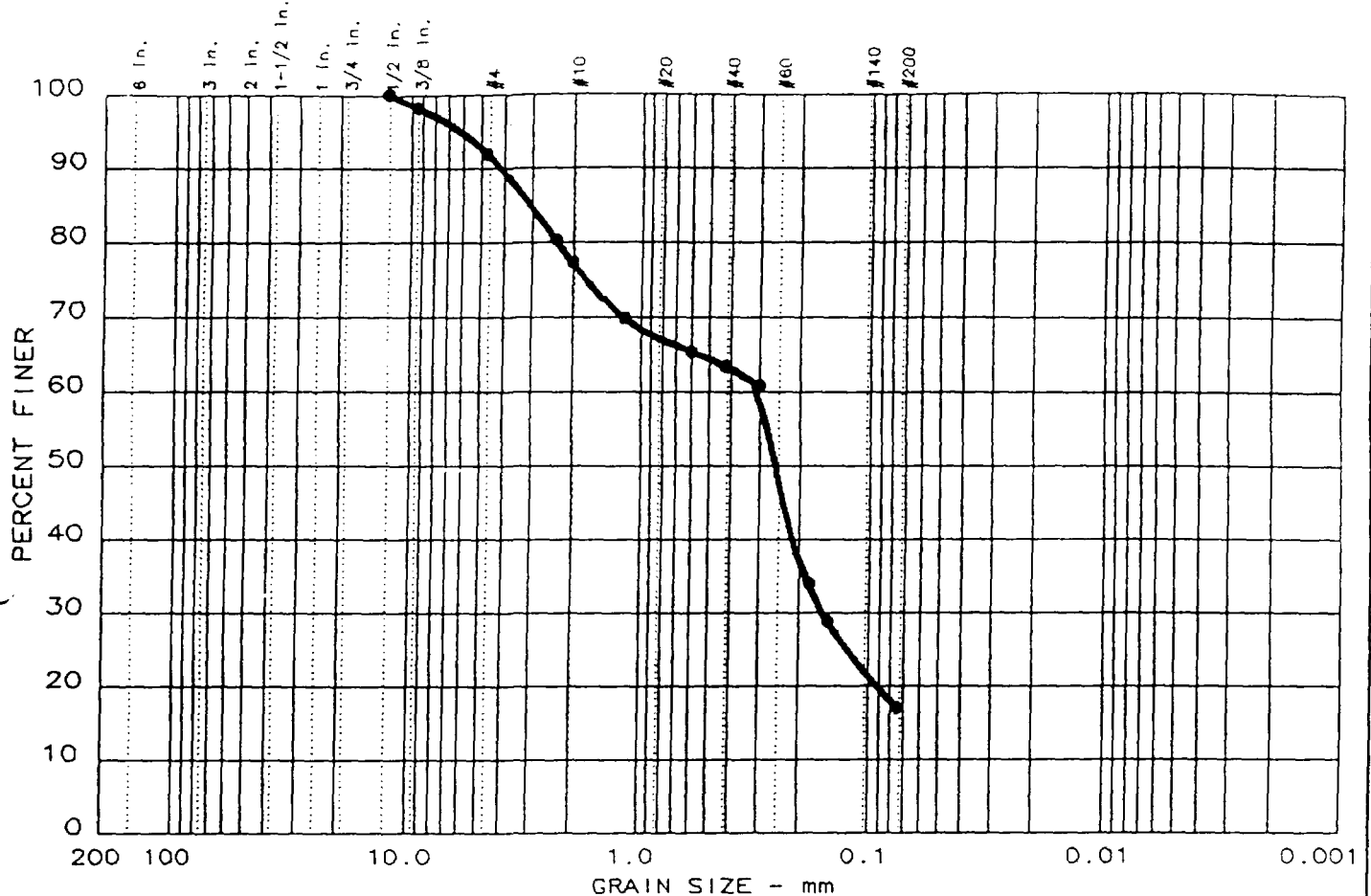
CGC, Inc.

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



GRAIN SIZE DISTRIBUTION TEST REPORT



| | % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|---|-------|----------|--------|--------|--------|
| ● | 0.0 | 8.1 | 74.9 | 17.0 | |
| | | | | | |
| | | | | | |

[illegible]

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-------------------------------------------------|------|--------|
| • Br Fine-Coarse SAND, Some Silt & Clay, Ltl Gr | SM | - |

Project No.: C95164-7
Project: ACS - Barrier Wall Alignment
● Location: SB112/SS5

ate: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT

CGC, Inc.

Remarks:

TESTED BY: KJL

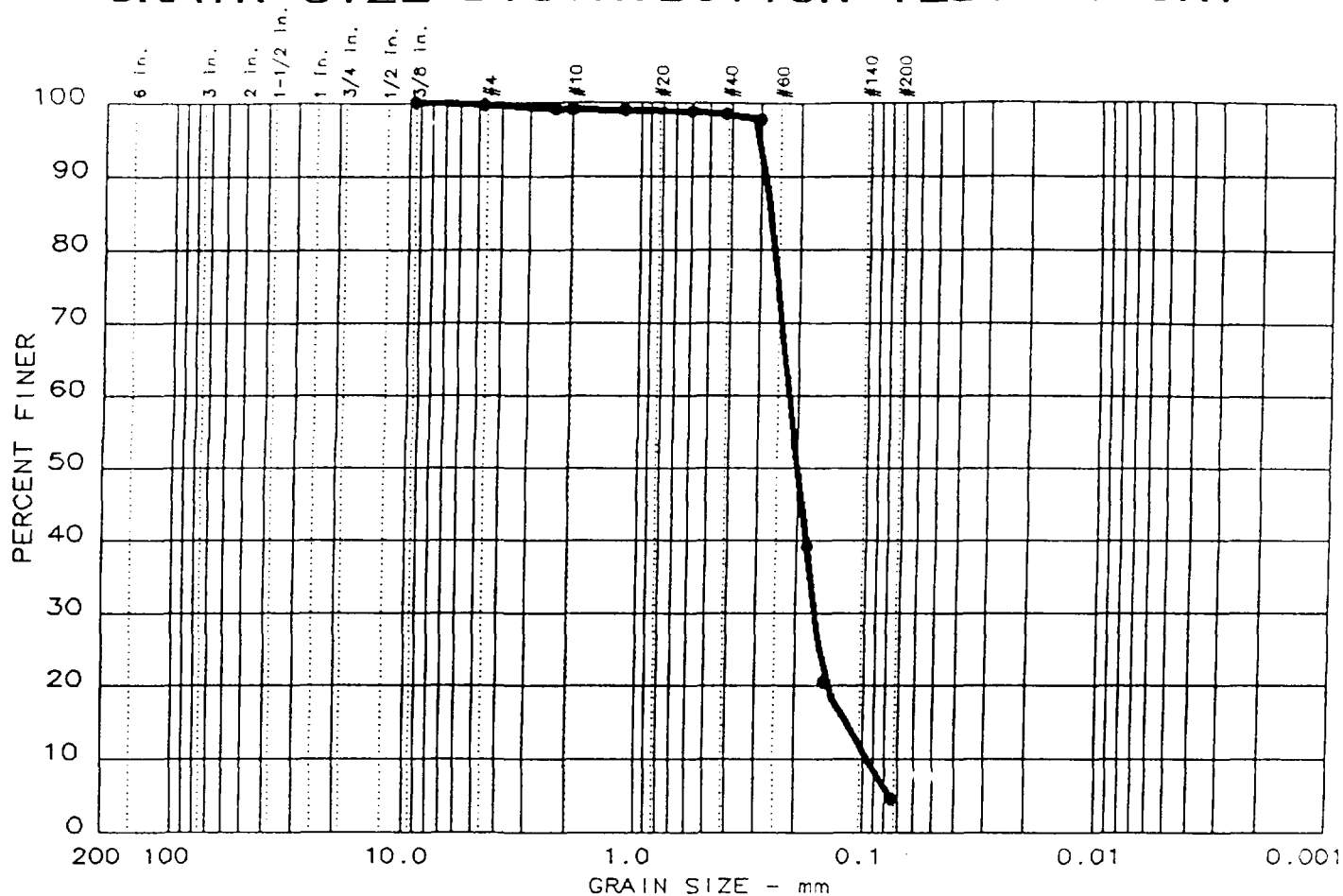
INPUT BY: MES

CHECKED BY: KJL

APPROVED BY:

Figure No. 1

GRAIN SIZE DISTRIBUTION TEST REPORT



| % +3" | % GRAVEL | % SAND | % SILT | % CLAY |
|-------|----------|--------|--------|--------|
| 0.0 | 0.4 | 95.0 | 4.6 | |
| | | | | |
| | | | | |

| LL | PI | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| NP | NP | 0.27 | 0.22 | 0.20 | 0.165 | 0.1179 | 0.0947 | 1.31 | 2.3 |
| | | | | | | | | | |
| | | | | | | | | | |

| MATERIAL DESCRIPTION | USCS | AASHTO |
|-------------------------------|------|--------|
| ● Brown Fine SAND, Trace Silt | SP | - |
| | | |

Project No.: C95164-7
 Project: ACS - Barrier Wall Alignment
 ● Location: SB112/SS8

Date: 3/5/96

GRAIN SIZE DISTRIBUTION TEST REPORT
 CGC, Inc.

Remarks:

TESTED BY: KJL

INPUT BY: MES

CHECKED BY: KJL

APPROVED BY: *[Signature]*

Figure No. 1